6 SPECIAL COLOR FEATURES

POPULAR PHOTOGRAPHY

WORLD'S LEADING PHOTOGRAPHIC MAGAZINE

MARCH, 1956 • 35 CENTS

The new color PRINTING PAPERS

How to buy a USED CAMERA

SAN FRANCISO: Picture story of a city

YOUR CAMERA: How it works

Guide to amateur LIGHTING EQUIPMENT

...itte Bardot

...e Halsman

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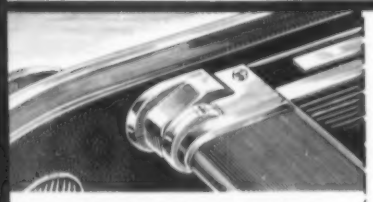

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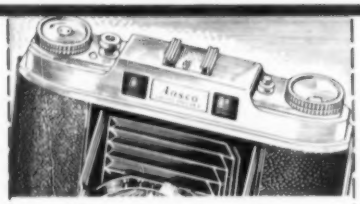

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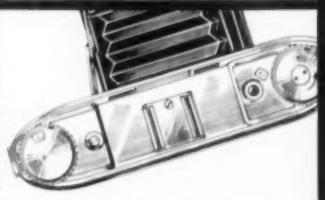

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All camera settings can be easily seen from top of the camera. Precision all-metal construction, matched with sturdy morocco leather cover, for a lifetime of use.

Famous "70" now has lens turret and viewfinder turret that turn together

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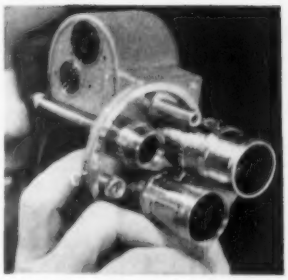
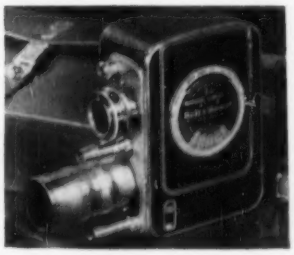


THE TRI-LENS has a built-in knack for 8mm versatility: 3-lens turret with matching viewfinders and 5 shooting speeds. Fits in palm of hand, uses roll film. With Comat f/2.5 lens, $139.95.



THE EXPLORER is a fast-action moviemaker: 8mm magazine loads in 3 seconds, a twist of the turret changes both lens and viewfinder. Yours, with Comat f/2.5 lens, $169.95.

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MARCH 1956

VOLUME 38 NUMBER 3

POPULAR PHOTOGRAPHY

including CAMERA and AMERICAN PHOTOGRAPHY

WORLD'S LEADING PHOTOGRAPHIC MAGAZINE

The piquant Parisienne pictured at the left is a twenty-one-year-old actress, Brigitte Bardot, who is described by top-flight photographer Philippe Halsman as one of the most provocative women he's ever seen. He made the picture in her apartment, using a 5 x 7 Portrait Graflex equipped with a 10-inch Bausch & Lomb Tessar f/4.5. Ektachrome was exposed at f/16 with illumination from four Ascor Speedlight units.

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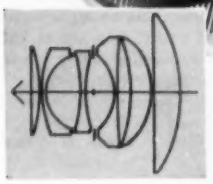

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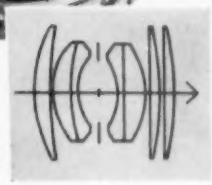

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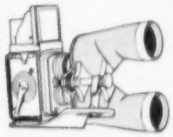

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REPORTER I

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LETTERS TO THE EDITOR

Cover: Pro and Con

Bravo for your January cover! The bewitching face of Marina Vlady is one of the best reasons I know of for buying POPULAR PHOTOGRAPHY. Also, the announcement on the cover of lead articles with accompanying black-and-white photographs is an exciting and tempting introduction to the magazine.

MELVIN RUDNICK
Wichita, Kansas

I presume that any photograph selected for the cover of your magazine is chosen for its superior qualities, i.e., composition, color, the model's attractiveness, etc. Therefore, I fail to understand how POPULAR PHOTOGRAPHY's January cover was chosen. Has a portrait of a girl with flowing blond tresses that practically obscure her whole face now become art? Also, those black-and-white photographs on the cover are too small to be interesting, and only give a cluttered, distracting look to the cover.

BETTINA LYNN
New York, N. Y.

He, too, Shot Himself

"How to Shoot Yourself" in the November issue brought to mind the enclosed shot I made of myself in a Houston radio

Bridges as Godfrey.

studio. The result has been described as a portrait of the "utter peasant's" Arthur Godfrey. It was made with a Rollei, using the self-timer.

BILL BRIDGES
El Paso, Texas

Shooting the Olympics

In reference to restrictions on photographing the Olympic Games at Melbourne, the Photographic Society of Victoria has advised its members to ignore the restrictions and photograph to their heart's content.

We understand that the Organizing Committee of the Games has sold the official photography rights to some professional photographers and must take some steps to protect itself in the contract which it has made. It is obvious, however, that the Committee cannot confiscate private cameras or eject thousands of amateur photographers from the various arenas.

J. H. MCCONKEY, President
E. ROYSTON CORNISH, Hon. Sec.
The Photographic Society of Victoria
Carlton, Victoria, Australia

How Near the Sun?

I have just completed Norman Rothschild's article "Indoor Color Exposure" (November 1955) and found it very interesting and informative. However, I would like to correct an error. He states that the sun is 40 million miles away, and I hope he is wrong. Otherwise, Mr. Rothschild will be quite scorched. The sun is 93 million miles away.

CARROLL HANKS
Beaumont, Texas

If Mr. Rothschild has stood within 40 million miles of the sun (November 1955) then he has done something no human being has ever done before. He should have a nice sun tan to show for it.

MAHMOUD IBN SIDI EL GAZA
Michigan City, Indiana

● *We don't know whether Mr. Rothschild's ruddy look is from sunburn or embarrassment.*—ED.

Who Fixed First?

In the article "All About Electronic Flash" (January 1956) Bob Schwalberg credits William H. Fox-Talbot as the first to use thiosulfite as a fixing agent. My research shows that Herschel used this chemical in 1813 and published reports indicating its suitability as a fixing agent. In 1835 Herschel called Fox-Talbot's attention to its use, as the latter was using salt.

THEODORE GREENE
Xenia, Ohio

● *What Schwalberg said was that Fox-Talbot was the first to use hypo to fix a photographic image. He concedes that Herschel used it earlier, but the discovery was unnoticed until Fox-Talbot published his results. This would seem to be logical since before 1839 there was no such thing as a photographic image.*—ED.

Nose-Against-the-Window

I look forward every month to POPULAR PHOTOGRAPHY.

However, I have one complaint to voice when I look through your advertising pages. It is impossible for us here in England to buy the many tempting things you offer to photographers. We have a selection here, but nothing like yours.

H. CUTNER
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TOOLS AND TECHNIQUES

by Norman C. Lipton

A round-up of recent developments and significant trends

Universal Kodacolor Film. A new, improved version of E-K's familiar Kodacolor negative roll film is now being made available throughout the country—a film permitting daylight and clear flashbulb exposures to be made on the same roll without the use of filters. The differences in the color of the illumination are accounted for by adjustments in the light source with which the eventual color prints are made. Identified as Kodacolor Film, universal, for Daylight and Flash, the material is packaged in the same type of box as the older film, with film-size numbers prefaced by the initials "CU." Perhaps even more significant than the illumination latitude of the new film is the critical image sharpness it can produce when used in professional cameras with well-corrected lenses that are shielded from stray light with properly fitted lens shades.

As soon as we received sample rolls of Kodacolor universal film for testing, we outlined a complete series of exposure tests to (1) confirm the splendid quality of the sample results shown us by Kodak personnel who have been working with the material; (2) determine how test subjects of our own choice were reproduced under the recommended lighting, and (3) find out how various subjects were rendered with other than the recommended light sources — electronic flash, photofloods, household lamps—both with and without various light-balancing filters. The results were not available for evaluation at editorial closing time for this issue, but they will be reported in a color-illustrated feature article in the April issue of POPULAR PHOTOGRAPHY. A preliminary examination indicated remarkable lighting latitude without filters to compensate for color-temperature differences.

Before finishing the outline of our projected feature article, we made a special trip to Kodak headquarters at Rochester, N. Y., to find out as much as we could about the manner in which the printing of Kodacolor universal Film negatives differed from that of the older type of Kodacolor negative material. We were told at the outset that the new film was substantially different from the old—physically, chemically, and photographically. A new Kodacolor Processing Kit is provided, Process C-22. The resulting negatives appear to have an over-all reddish-brown overcast, due to the integral dye-coupler masks, as compared to the yellowish-brown hue of the older film. The "straight-line" portion of the characteristic curve is much longer, too, to permit accurate color control by changing the relative proportions of the printing-light components. Successive printing exposures are made with red, green, and blue light in the production setup (although a single, filtered "white light" exposure will also produce excellent results on Type C color paper in custom-laboratory or home-darkroom practice). The most pointed difference between the printing method for the new Kodacolor film as compared to the old was evident when we inspected the control panel of the new Kodak Type C Printer for Kodacolor negatives. This is a complex modified version of Eastman's Type 4 Velox Rapid Printer now being offered for sale to independent color finishers. The operator of the Printer is required to press one of three circuit-control buttons after inserting the negative into the printing stage. One button sets the proportional timing mechanism of the unit to give optimum color balance with old-type Kodacolor negatives; the second, with indoor (presumably clear flashbulb) exposures on Kodacolor universal film, and the third with daylight exposures on Kodacolor universal film. Should the operator mistake an indoor scene exposed by daylight, electronic flash, or blue flashbulbs alone (the latter a pointless technique) for a clear flash or filtered photoflood shot, the printing machine will be fooled and a remake will be necessary to get the best possible color quality, although the result might conceivably pass as acceptable. The automatic printer saves time, brain-power, and money by automatically integrating the red, green, and blue filter requirements, and the selector button system gives it the ability to handle any Kodacolor negative by adding the human judgment factor. In the home darkroom where there is no automation, the usual preliminary tests will enable the worker to get optimum results from the three types of color negatives that the automatic printing machine is required to sort out before doing its work.

After living with universal Kodacolor for the past few weeks and observing for many months the possibilities of Kodak Color Print Paper Type C on which prints are made from Kodacolor and Ektacolor negatives, we are tempted to go out on a long thin limb with a series of observations and predictions:

1. With the advent of Kodacolor universal Film, the Kodacolor process is now capable of producing professional print and photomechanical reproduction quality. It can no longer be dismissed by the perfection seeker as just another amateur tool.

2. Sharp, precisely exposed Kodacolor universal film negatives printed on Type C color paper are capable of producing results that are as saturated as the colors of Dye Transfer prints, and images which are noticeably sharper. Dye Transfer should eventually become no more than a

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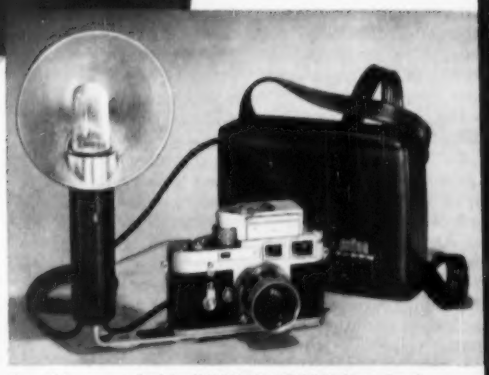

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special-purpose color-print material for situations where the ultimate in color-contrast control is demanded.

3. The best reproductions of continuous-tone color copy on the printed page will eventually be made from color negatives—not from positive color transparencies nor from color prints which lack the color-information content of properly exposed color negatives of the Kodacolor and Ektacolor type.

Dormitzer Ciné-Light. A portable motion-picture light source powered by Dormitzer's recently developed Dynaseal (nickel-cadmium) rechargeable battery is now being introduced to the market as the Synctron Model 250 Ciné-Light. (The special characteristics of the Dynaseal battery as employed in Dormitzer speed-lights were discussed in an article on page 130 of the May issue of POPULAR PHOTOGRAPHY.) The new light unit consists of (1) a lamp head with handle incorporating a 12-volt, 250-watt lamp (4-hour life) and (2) an 18-pound power source in a cowhide case with sling shoulder strap measuring 11x11x5 inches over-all. The light output of the unit is 8,000 lumen seconds; color temperature, 3400 K; minimum light duration, 20 minutes at full output. The Dynaseal battery has a 9-ampere-hour capacity and is uncontionally guaranteed for 5 years It incorporates an automatic four-hour trickle charger as well as a voltmeter for instantly checking battery condition. The lamp head has a cast-aluminum mounting handle for use on or off the camera. The reflector focus can be quickly adjusted for flood or spot-beam operation. The "on-off" switch is mounted directly on the lamp head, and a seven-foot-long heavy-duty rubber cable with a twist-lock connector couples the lamp head to the power-supply case. The unit is priced at $325.

Scientific Stereo Close-up Camera. An automatic, precisely engineered three-dimensional camera outfit for making studies of medical subjects at extremely close range has recently been introduced by the Perkin-Elmer Corporation of Norwalk, Conn. The unusual optical design of the camera, which was not disclosed, is said to eliminate the distortions usually found in three-dimensional photographs made with ordinary stereo cameras. Camera operation is simplified by the use of numbered scales for bellows extension, interocular distance, and parallax correction, which are calibrated according to the degree of image magnification or reduction required. When all of the scales have been adjusted to the particular number representing the image-magnification factor, the camera is focused and it is ready to take the picture. The same small lens aperture is used for all exposures, and the necessary exposure light is provided by an electronic flash source of variable intensity which is also calibrated according to magnification. Exposure, magnification, and stereoscopic effect can all be reproduced at will by means of the calibration system. The invention of Dr. David Donaldson of the Howe Laboratory of Ophthalmology, Harvard Medical

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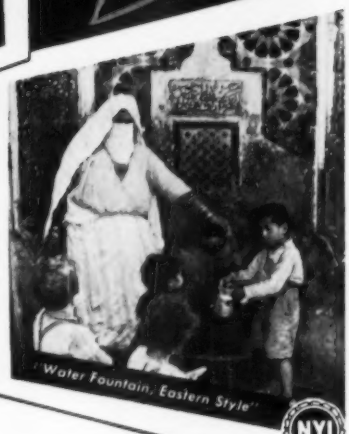

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> *"Then came the 'topper'. Five out of five pictures I submitted in the ALL-NAVY PHOTO CONTEST were ALL WINNERS. I walked off with 1st and 2nd Prizes and 3 Honorable Mentions!*
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THREE FIRSTS FOR HERBIE

This photograph of little Debbie and her newest cousin is the FIRST photo by amateur photographer Herb Jacobs ever to be published. It was his FIRST use of the fastest available film—and it was his FIRST experience with FR's X-500 Developer for "Available Light" Photography.

All of the light came from two windows in the living room and it was this dimensional lighting which gives form to the older child's face. The exposure—amazingly, for indoors—F8—1/25th.

It takes the combination of the high speed films like TRI-X and FR's X-500 developer to permit such perfect photography indoors at a speed rating up to ASA 2000 without photofloods or photoflash. No tricks, no special processing, no struggling in the darkroom with a "thin" negative, no attempts at forcing up a print on contrasty #5 papers developed in straight developer.

Herb's negative is normal. It prints on normal grade paper. It has a medium fine grain structure.

If you would like to take pictures indoors but thought you needed the "fast" miniature camera, you'll be happy to know that Herb's camera is an inexpensive reflex—with an F4.5 lens. As a matter of fact, he stopped down to F8 to extend his depth of field so Debbie in the background would not be too out-of-focus, a good idea for close-ups.

USE X-500 FOR OUTDOOR PICTURES TOO

X-500 is the "life-saver" for those times when you must make action pictures outdoors—at twilight or on a dirty day. Or even in broad daylight if you must have the combination of your camera's smallest lens opening and its highest shutter speed.

FR's X-500 is packaged in two convenient sizes, an 8-ounce bottle which mixes with water to make up a 32-ounce working solution, costs 39c. You'll be able to develop 20 rolls of film in it before mixing up a new batch. A 1-quart bottle, selling for 99c, makes up a gallon of working solution, ideal for a camera club darkroom or a darkroom at a newspaper or industrial plant.

Develop film in X-500 as you would in any developer. The time temperature chart is on the bottle's label. And please, no fudging. Do not develop a few extra minutes "for safety's sake." ¾-oz. of stock solution added to the dilute after each use will keep the recommended developing time at a constant.

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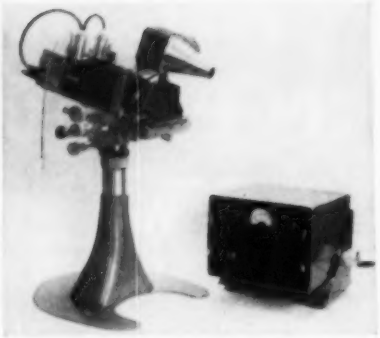

Perkin-Elmer stereo close-up camera is mounted on stand with precisely geared controls; flash and focusing light power supply, at right.

School, the new camera in prototype form is currently being used in various research institutions throughout the country, where it has proved valuable in studying pathological tissues and organs as well as the biological characteristics of tiny insects. Both large and small objects can be photographed with the equipment. The Camera is priced at $2,500 complete with power supply, electronic flash source, stand, and viewer.

Color Separations by Speedlight. A new technique for exposing the separation negatives used in color photoengraving by electronic flash was outlined in the *British Journal of Photography* for September 30, 1955 (pages 488-9). The equipment and method had been worked out by a Parisian color photographer, M. Jean Chevalier, with the co-operation of "one of the leading publishing houses in France," according to the article. The relatively expensive installation was used for more than a year in production work, and is reported to have produced good results. Among the advantages listed for the electronic-flash exposure technique were: time saved in exposure; no danger of overheating with attendant variation of copy size between the separation exposures; complete suppression of vibration; identical lighting intensity from one flash to another; continuous spectral emission close to that of sunlight; well-defined shadow detail without overexposing the highlights; absence of the over-all fog which is likely to occur with prolonged exposures; low current consumption, and the virtual elimination of trial-and-error exposures.

Verifax Offset Process. A 90-second method for preparing low-cost offset printing plates with the Kodak Verifax office photocopy machine and a new Verifax Offset Adapter were described in the August 1955 issue of the Eastman Kodak Company's quarterly shareholder brochure, *Highlights*. First the original copy to be duplicated (any typed, printed, drawn, or written matter) is exposed in the Verifax Copier—either letter size or legal size—with a sheet of ordinary Verifax Matrix Paper. After a brief immersion in the activation solution, the matrix is brought in contact with a paper offset plate and then stripped away, leaving a

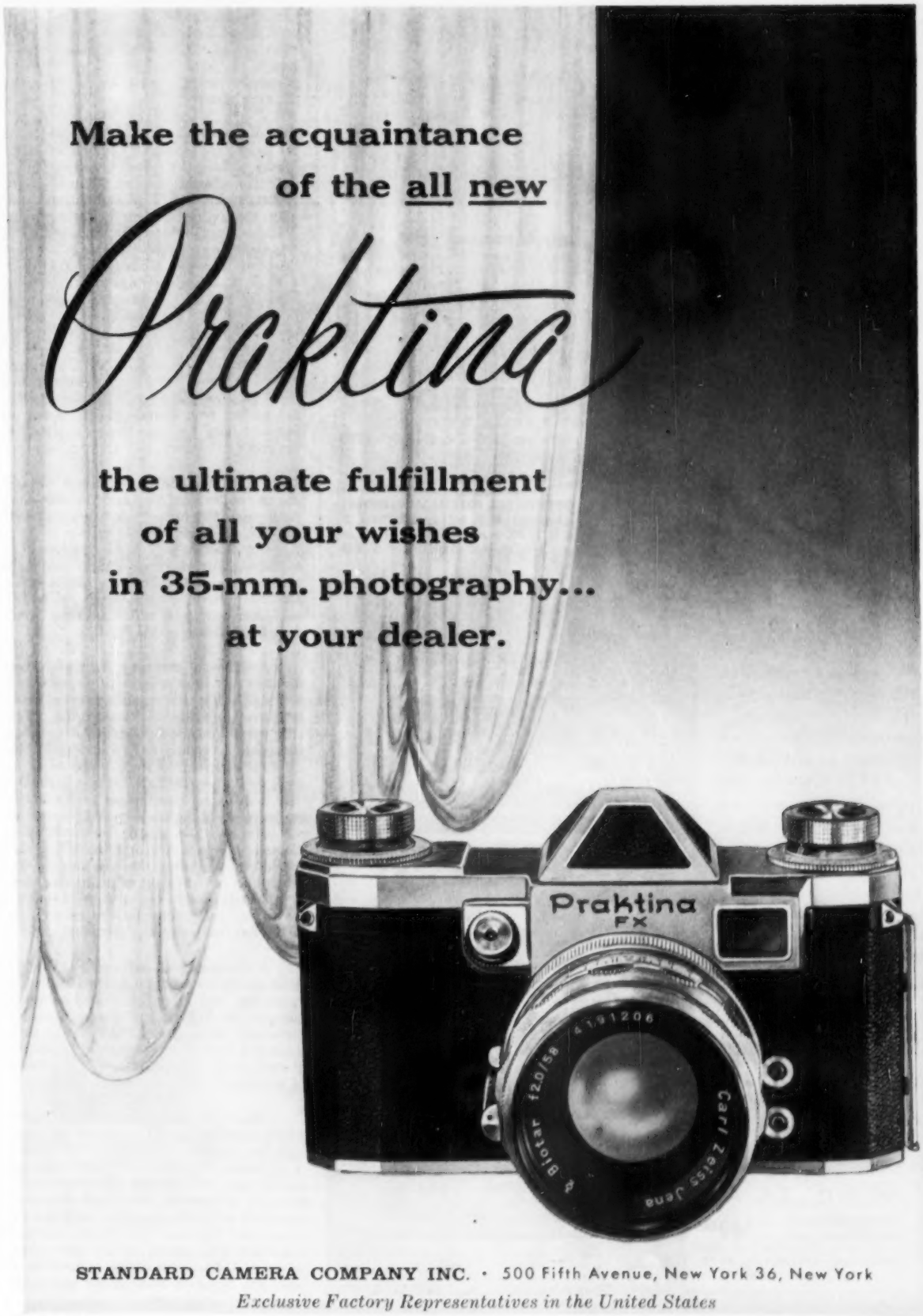
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photo-exact image on the plate. The plate is made ready for use by a few quick swabs with an etch solution, followed by a water-damp sponge. The entire operation takes place in room light, utilizing materials costing less than 20 cents per printing plate.

Etched Circuits. Step-by-step methods for producing etched circuits and name plates with E-K's new high-speed light-sensitive plastic coating, Kodak Photo Resist, which was originally designed for photoengraving and photolithographic plate making, are described in a free leaflet available from the Graphic Arts Sales Division, Eastman Kodak Co., Rochester 4, N. Y. The new coating is so stable and uniform that the same exposure time is guaranteed by the manufacturer under any temperature or humidity conditions; moreover, it permits precoated metal to be stored for future exposure. Both chemical and electrolytic deposition of metals can be achieved on a selective basis with the aid of the new Kodak Photo Resist, or pigment can be selectively applied, if desired.

Odds & Ends. The recent trend toward the use of Du Pont Varigam variable-contrast paper for contact printing has caused the manufacturer to discontinue making Apex contact paper. Apex has been familiar to many amateurs and professionals since it was introduced in 1932 by the Defender Photo Supply Company, which was later combined with the Photo Products Department of Du Pont.

. . . Addition of mercury (or such other divalent metals as calcium or magnesium) to the photographic emulsion during manufacture is claimed to improve the emulsion's resolving power without impairing its speed, according to French Patent No. 1,076,212 granted to the *Companie Generale de TSF* on 10/25/54 (applic. 2/19/53). The postulated mechanism restricts the action of light to the exposed regions of the silver halide grains by facilitating electron conductivity and inhibiting migration of the holes, thereby making the resolution independent of grain size. Additional advantages claimed are the elimination of reciprocity failure as well as of the intermittency and Herschel effects.

. . . A discussion of darkroom safelight-filter design based upon the rod and cone responses and other physiological reactions of the human eye appeared in the November 1955 issue of *Photographic Science and Technique—Design of Safelight Filters*, by E. S. Mackey and L. A. Micco of the Ansco Development Laboratory.

. . . News of an electronic lens tester which permits optical scientists to evaluate the performance quality of lenses in objective mathematical terms has recently been released by the Radio Corporation of America, New York. The data recorded with this experimental device completely replaces the visual observations and evaluations of the star-image properties of lenses which has heretofore been the standard method for prerating lens performance.

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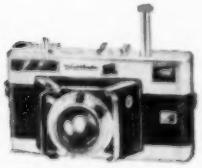
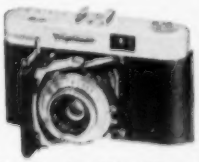


Voigtlander Vitessa "L" 35mm, built-in exposure meter and LVS shutter. Automatic film transport. Voigtlander f/2 Ultron Lens. 159.50

Voigtlander Vito B — fine 35mm camera with automatic film transport and other expensive features. Voigtlander Color-Skopar f/3.5. 45.50



Voigtlander Vito IIa—35mm folding camera, with automatic film transport. With Voigtlander Color-Skopar f/3.5 lens. 54.50

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With color television just around the corner, can you give me some hints as to making pictures in color off the TV screen? What kind of film would I need and what filters would be recommended for getting good color rendition?—P. R. T., Chicago, Ill.

This is a very interesting and appropriate question. Since no one around the corner has color TV as yet, I did some investigating and testing on some of the current broadcasts. The technicians at RCA and CBS tell me that present day color TV sets are designed to give a good color rendition at a color temperature of about 5400 K although no true Kelvin temperature can be measured from this type of illuminant. However, if a color TV set is in proper adjustment and balance, excellent color pictures can be made on Daylight films with no filtering at all. In fact, some photographers who work for the networks and often make such pictures off the screen tell me that they have consistently successful results just shooting daylight film, and never filter unless the set is out of adjustment.

With the new fast Ektachrome E-2 or the new Anscochrome films, in the daylight emulsions, exposures run about $f/2.8$—3.5 at about 1/5 second. Sometimes, when you have very bright, light colors, you may want to stop down more; and with very dark colors and subjects you may want to open up. If you are processing your own films, you may want to increase the effective film speed. Instructions for this technique have appeared in these columns before.

One added note on photographing images from TV screens: because of the way that scanning lines are projected on a TV screen, you will get best results by shooting at 1/25 second or slower with iris-type shutters, and 1/10 or slower with focal-plane shutters; otherwise you may find that your focal-plane shutter is operating in such a way that the scanning lines on the TV screen may not synchronize just right and you'll miss part of the picture.

Incidentally, we might remind you that if you shoot off the TV screen for fun, you'll probably get a kick out of making records of some of your favorite programs, but please note that many TV shows are copyrighted and if you attempt to sell or make commercial use of such pictures, you should be sure you are not violating the copyright.

•

I am a bit confused to the point of bafflement on a problem which seems to concern light transmission through other than normal lenses. I am using a lens for my $2\frac{1}{4}x2\frac{1}{4}$ Master Reflex with an adapter on my Kine-Exakta and the resultant transparencies are all overexposed. How can the increased lens diameter have such an effect on exposure?—W.E.J., Okinawa.

Now here is a man who finds himself in trouble and makes some interesting conjectures. But is he right? Well, let's look into the matter and see if we can offer some help. Since he's using a $2\frac{1}{4}x2\frac{1}{4}$ camera and comparing the results against those of a 35-mm camera, he may not be using the same film and he may find that if he is using Ektachrome against Kodachrome, he may not be accurately figuring the change in exposure relationship. If he is using the same kind of film, 35-mm Ektachrome E-2 as against 120, or 35-mm Anscochrome against 120, he may have emulsions that differ in speed.

He suspects the lens; but since the calibrations don't change and he is using the same lens, the only possible consideration here would be that on a larger film size his lens might possibly give him a vignetting or darkening of the corners and he judges his total exposure on this, whereas the 35-mm negative is illuminated only by the brighter center section of the lens. But if the $2\frac{1}{4}x2\frac{1}{4}$ pictures he gets on his larger camera are evenly illuminated, what then? Have you guessed? I'd suggest that he have his shutter speeds checked on both cameras. His large camera may have a fast shutter so that when he shoots with a shutter setting of, let's say, 1/50 sec, he is getting only 1/100 but with good results. Or the shutter on the smaller camera may be slow and when he shoots at 1/50 he is getting a true exposure of 1/25 with the consequent overexposure.

If he has correctly related his film speeds and the lens is kept at the same aperture, I suspect that he has shutter trouble.

•

NOTE: Some time ago in these columns I mentioned that many photographers had discovered in making photographs from the air in color the use of the indoor-type films like Ektachrome Type B and Kodachrome Type A with proper conversion filters for use in daylight often produced results that were better than when Daylight films had been used, even with ultraviolet cutting filters. I have just made some tests with the new Ektachrome F emulsion using the 85C Conversion filter that is recommended for daylight use and the results were excellent. I also tried the same film with the old 85 and 85B Conversion filter to see what happened. Although the results were a trifle warm, they were even better than the 85C where there was quite a bit of blue haze; it seems that these filters cut out a good deal of ultraviolet and for aerial work would seem to be quite satisfactory, particularly where more correction is needed.

Questions of general interest to the color photographer will be answered in this department. However, individual replies can not be given for questions that are not used.—Ed.

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CAMERA CLUBS by Whit Hillyer

Have Grudge—Will Travel

Periodically I hear from a camera club officer who is worried about a drop-off in attendance at meetings and wonders how best to improve matters.

Of course you can't devise a remedy which will cure every camera club ill. And usually the situation is best examined at close hand, with some knowledge of the individuals and local conditions involved. While the diagnoses may differ, the symptoms tend to be much the same—somebody works up a grudge (or at least loses interest) and takes off. You never see him at meetings again.

Some pertinent thoughts on this subject were contained in a recent issue of *Southwestern Michigan Camera Club Council's* bulletin, "The Counsellor." In a piece entitled *Is Yours a Sad-Sack Club?*, Ray Rosenhagen put out some sound suggestions, from which the following passages were excerpted:

"Officers . . . should be the starters in field trips, model nights, and discussions. Officers should take an interest in *all* members. Circulate, talk, be friendly. The person who isn't made welcome isn't a good prospect for attending future meetings. It isn't enough to say 'We welcome you.' *You must make him feel he's a part of the organization.* [Italics mine—WH.] Generally, as your officers are, so will be your club.

"You cannot force a member to attend by means of threats. He must be made to want to come. The main enticement a club has is its program, which must be planned to plant seeds of new ideas, different techniques. Too much time is spent telling us what is wrong with our work. Let's give a little correction, certainly, but leave more time for information which will advance our knowledge.

"Get members having special interests to show and talk about their work. They may not be good speakers, but will that matter too much? Often a member is never asked to do anything; a certain few take over, and that is that. . . . If a person doesn't have a specialty, assign him a subject allied to his type of photography. A five-minute demonstration or talk will give him something specific to study, learn, and talk about. . . ."

There's more to the Rosenhagen pitch, but the foregoing should give some ideas to officers of "sad-sack" groups. In fact, there's much here that should give any camera club member something to think about. To me, one of the more important points is that of giving everybody something to do. Nothing is better for making an individual feel that he or she belongs. You'll realize the truth of this if you can recall having been delegated by your third-grade teacher to clap the erasers after school or wash the blackboard or hand out paper for a spelling test. I'm making no direct comparisons, of course, although every duty connected with any organization is important to the group's success.

Anyhow—if you've noticed one or two seemingly disinterested members in your club, try them out on some club project. In some cases it may be too late. After a certain period of neglect, a disgruntled or disinterested person may feel that you're trying to use him. But more often than not you'll kindle new interest and at the same time add to the club's efficiency.

Good Movies Made at Home

A challenge to all movie makers who feel that interesting films require travel is contained in two pictures featured on a *Metropolitan Motion Picture Club* (New York) program not long ago. The quality of this club's work is high indeed, and inclusion on one of its regular evening programs requires good cinematography. Terry Manos put a film together in his apartment. And his fellow *MMPC* member Helen Loeffler hit the ACL Ten Best with a 15-minute feature she filmed right in her own basement. So what's stopping *you?*

Another Club Council Started

The *North Central Council of Camera Clubs* was launched recently, and is growing fast. The following list of member clubs was correct at press time, but there may be more now: *Austin* (Minn.) *Camera Club; Owatonna* (Minn.) *Camera Club; Sioux Falls* (S.D.) *Camera Club; Sioux City* (Iowa) *Camera Club; Norfolk* (Neb.) *Camera Club; Omaha Lens & Shutter Club;* and *Wichita* (Kan.) *Color Slide Club.* Monthly print and slide contests are under way, with one club judging entries each time. Until further notice you can reach the Council by writing to Francis Kingsbury, Sioux City Camera Club, Box 1051, Sioux City, Ia.

We hear that the 49-year-old *YMCU Camera Club* (Young Men's Christian Union) of Boston has been holding a series of coffee parties in connection with its drive for new members. First party featured the taking of color portraits of guests, demonstration of color processing, and presentation of a souvenir transparency to each subject. Subsequent parties will include demonstration of portrait-studio facilities, lessons in portraiture, development of guests' monochrome film, enlarging, and dry-mounting.

Camera Club of New York has been conducting a worth-while course in photography for the beginner. This is to be followed by a series of more advanced instructions in subjects such as color separation and studio lighting. If you're in New York City, or are going to be there for an extended visit, you might investigate by dropping in at the club headquarters, 101 West 48th St., New York, N. Y.

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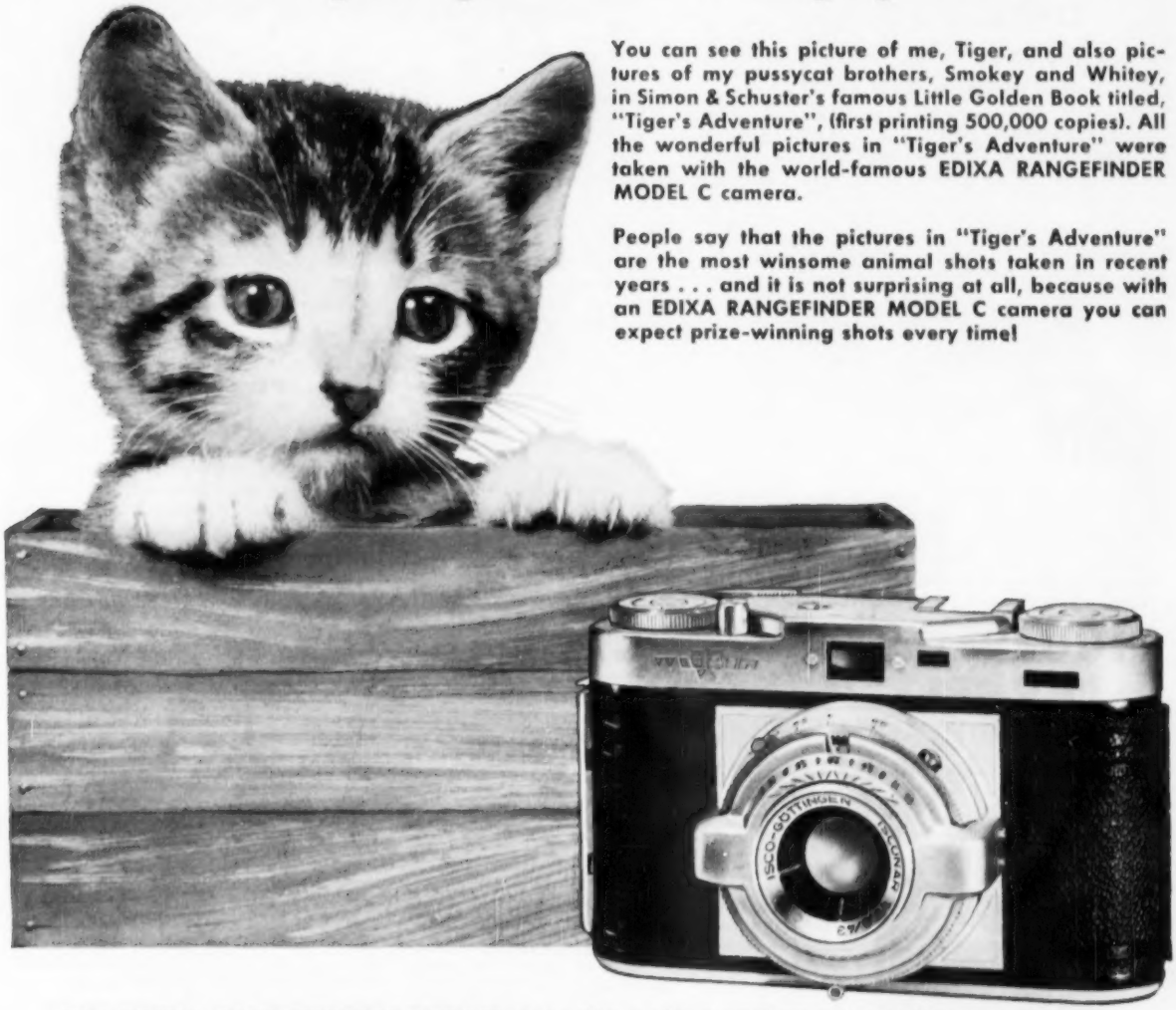

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35-mm TODAY by Bob Schwalberg

Twenty Years of the Leica Manual

In the three decades since the birth of 35-mm still photography at the 1924 Leipzig Fair, the Leica people have managed to produce seventeen models of their famous camera ranging from the Model A to the M-3. In 1935 one of the most valuable of all Leica accessories made its first appearance. This accessory, which was not produced by E. Leitz, and which won wide favor among users of other 35-mm cameras, was the first edition of the *Leica Manual*. Twenty years later we find the firm of Morgan and Lester publishing their thirteenth completely revised edition. When you count the some half dozen extra printings run off for various past editions, the score for Leica models and Manual editions is pretty even. This is a lot of cameras, and a lot of books.

The thirteenth edition of the *Leica Manual And Data Book* is completely in the tradition of its forbears. 35-mm photography has done a lot of growing since the first edition, and the "35-mm man" has become a difficult animal to type. The 35-mm camera has invaded every field in photography and today pretty completely dominates at least two major ones: amateur color-slide making and professional-magazine photojournalism. The blanket designation "35-mm man" today conveys no information beyond the choice of camera type and film format. Maisey Jones, Girl Secretary, and Ernest Hemingway, Novelist, Championship Division, both employ the typewriter in their work. Shall we label both as "typists?"

This widespread acceptance of the 35 (despite the spate of dire predictions that the thing would never fly which greeted its birth) has led the miniature down too many paths to cover adequately within the confines of a single volume and has compelled the *Manual's* otherwise indefatigable publishers to "place less stress upon the inspirational part of photography with the Leica camera." They have, instead, concentrated their fire upon the technical aspects of the Leica and its accessories, and those aspects of phototechnique which set the 35 apart from its more amply proportioned brethren. But the "inspirational" aspect has not altogether been overlooked.

In a chapter titled *The Craft of the Photojournalist*, Paul Berg, New York-based staff photographer for the *St. Louis Post-Dispatch*, has concocted one of the finest blends of inspiration and execution that we've seen between hard covers in a very long time. Staffman Berg makes it plain that he's a 35-mm man because his Leicas let him do the job he's set out to do better and more easily than other types of available equipment.

His well-defined concepts about pictures, photojournalism, and the picture-story, his analysis of his own approaches to technical problems and equipment, and his auto-descriptions of a working pressman's problems and methods on assignments ranging from a feature on a sexy gal singer (" . . . she thought her right side was not as pretty as her left") to covering a presidential-campaign train (". . . an almost constant 'fight' from beginning to end") are summed up in this simple statement of purpose:

"Because his goal is to catch life as it is, the photojournalist interferes as little as possible with what is in front of his camera."

It is also fitting that this chapter, which could have advantageously received a lot more space, should have been the contribution of a working news photographer. The Gene Smiths, Alfred Eisenstaedts, Ernst Hasses, and Dan Weiners of magazine journalism are household, or at least *darkroom* bywords. But too seldom do the very real contributions being made by gentlemen of the press, who normally work under pressure seldom experienced by magazine men, receive adequate recognition. The press photographer is today breaking away from his worn-out stereotype, although the mold needs more smashing, and among their once fiercely proud 4x5 ranks there are men actually unashamed to show up at an assignment with a miniature camera! While we're at it, permit me to mention three pressmen who, like Paul Berg, deserve wide recognition: Don Ultang, of the *Des Moines Register and Tribune*, Dean Conger, of the *Denver Post*, and Thomas Abercrombie of the *Milwaukee Journal*.

The chapter on developing 35-mm film is both interesting and informative. In it the authors perform a unique service in attempting to define this newly fashionable term "compensating developer." I say "unique" because a search of some several dozen well-known texts has failed to turn up another author of like audacity. When the term *does appear* in certain works it seems to refer not to a type of developer but to the act of compensating for exposure or lighting conditions by increasing or decreasing the amount of development given. The term is most frequently encountered in the German photographic press where it is used to describe a type of developer which is particularly well suited to the processing of thin-emulsion films as opposed to old-line ultra- (or "super-") fine-grain developers which, the authors always maintain, are not at all so suited. The *Leica Manual* follows this line, and takes this tack:

". . . thinly coated film will reach its maximum gamma rather rapidly, and if exposure is not correct the denser parts may be overdeveloped while trying to bring out the . . . underexposed shadows . . . If a developer could somehow be restrained . . . in the development of the more fully exposed areas it might be possible to secure increased detail (or at least increased contrast) in the . . . less exposed areas."

This may be accomplished, the text explains, "If . . . we make a metol developer which is very dilute . . . and if we use this developer completely without bromide so that it retains its maximum

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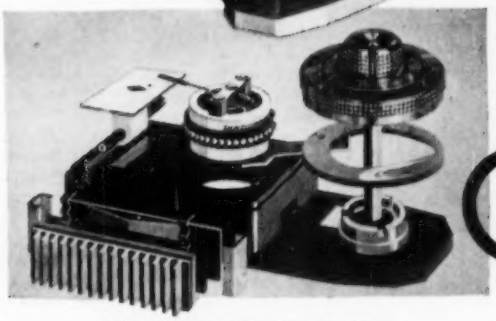

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energy in developing shadow details . . ."

Our point in bringing this up is not to criticize this definition, which is perfectly adequate and acceptable, but to point out that mere "compensating action" within the framework of the definition, is only part of the reason why some formulas are well suited to developing thin-emulsion

Prevailing-light shot on new 35-mm Plus-X. Exposure based on meter setting of ASA 400. Development for 13 min. in Ilford Microphen.

films, and others are not. Many formulas which fit this definition are poor thin-film developers, not because they lack compensating action but because they contain chemicals which by their very nature, or, as in the case of sodium sulfite, because of their concentrations, act as "grain shavers" and dissolve away the outer edges of silver clumps as they are reduced by the developer action.

This is a most undesirable action in connection with thin-film emulsions because the dissolving away of this edge-silver increases the distance between adjacent silver grains, thereby undermining resolution.

The discussion of developers and film speed is very lucid and technically sound. The conclusion reached is that photographers ". . . may use meter settings higher than normal for their type of work, but these *meter settings* must not be considered as actual *film speeds*." To this we say Amen and bravo! At last a respected authority has stated plainly that existing-, or as Mr. Lester prefers, "prevailing-" light photography is feasible.

When I discovered some time ago that I could use higher-than-normal meter settings with the manufacturer's recommended development, or even *less* than this normal recommendation, it occurred to me that the speed was not in me or in the developer. What we call "speed" is merely the film's built-in latitude toward underexposure, and not something with which we can tamper. The trick, of course, is to pick the meter setting and developer that will best exploit these inherent film qualities with reasonably good grain and gradation. And the interesting thing is that tremendously powerful formulas usually permit *lower* effective film speeds (meter settings) than the soft-working fine-grain soups which make high meter settings possible with films like Tri-X and Plus-X. And, as far as the practical (*i.e., picture making*) photographer is concerned, the settings to which he can safely adjust his exposure meter's film-speed dial, are the only measures of speed that mean anything at all.

LEICA MANUAL and Data Book, Morgan and Lester, New York. $6.00.—

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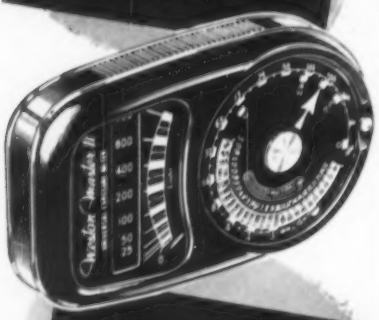

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WESTON
exposure meters
The Meters Most Photographers Use

STEREO TODAY by Robert L. McIntyre

Eye-twisting Research

Most of us try to keep our stereo slides in perfect alignment, but a group of Kodak researchers have developed a special mount that deliberately raises one transparency in relation to the other or rotates it by a measured amount. The mount was designed for use as a tool in a study to determine how accurately slides must be mounted for hand viewing. Dr. M. R. Goff reported results of the investigation at the PSA convention in Boston.

In general, the procedure was to have viewers look at pictures which had been thrown out of alignment and to tell whether they experienced difficulty or discomfort. Careful records were kept of their answers and of the amount of misalignment in each instance. Results were plotted on a graph and formed an inverted S-curve that told about the story you would expect. Almost everyone tested was able to view well-aligned slides in comfort, and almost everyone complained when shown slides grossly misaligned. Perfect alignment gained 97 percent acceptance. A vertical error of .030 inches was acceptable 75 percent of the times it was presented. An error of .070 inches was almost always rejected.

Translated into simple terms, the study indicates that the very best mounting is acceptable to nearly everyone, and that as the errors which produce vertical misalignment approach 1/32 of an inch they begin to bother a significant portion of the people who look at our slides. If we let them become as great at 1/16 inch, practically everyone will complain. This is more than we knew before—we realized mounting should be accurate, but we didn't know much about the degree of error that people would tolerate. Individual scores varied considerably, suggesting that people differ widely in their ability to look at misaligned slides.

When asked whether his findings could be applied to stereo projection as well as hand viewing, Dr. Goff stated that undoubtedly there was some relationship but that so many other factors were involved in projection that the application would not be a simple one.

Mounting Improves

An improvement in mounting was noted by Earl E. Krause, APSA, who prepared slides for showing in the Chicago Lighthouse exhibition. He found 92% of the accepted slides in modern projection mounts. Of them, 80% required no adjustment at all to get satisfactory vertical alignment. For best possible results, however, 45% required horizontal adjustment. These figures are based on use of a screen 9 feet wide, which calls for greater accuracy than smaller screens for showing pictures at home. They include horizontal adjustment to make brilliant highlights overlap in night scenes—a condition which otherwise would cause objectionable "ghosting."

For big-screen showing, Krause advocates shifting transparencies to place near objects in scenes up close behind the stereo window. With most pictures this means moving the films closer together than they usually are placed. This system keeps infinity points closer together on the screen for easier viewing; they are hard to fuse when they get much more than 2½ inches apart. It also reduces "ghosting." While everyone agrees mounting is the best solution to the projection problem, much attention still is being given to different ways of adjusting the projector.

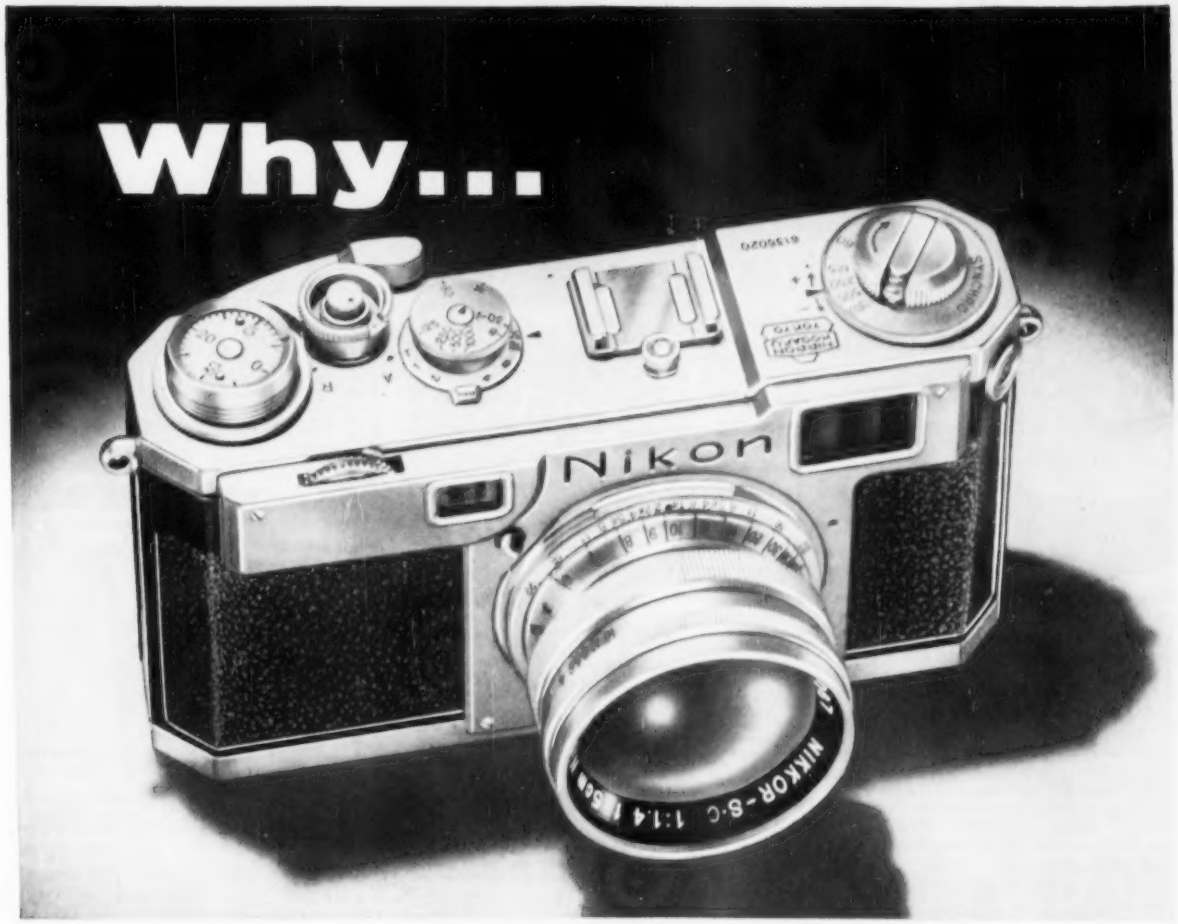
Console-type Projector

Members of New York Stereo Club, a descendant of the Stereoscopic Society of America, were recently treated to a demonstration of a stereo projector with a unique system of pre-adjusting slides to ensure correct alignment on the screen. It was developed by A. E. Bachelet. It employs two sets of keys, 10 to a set, to achieve horizontal and vertical alignment. Slides must be projected in advance and marked with the projector adjustment they require—like "3-H, 6-V." At a showing each slide then can be inserted in the carrier and the projector preset by pushing the appropriate keys. This automatically makes the required adjustment.

One solution to the problem makes shows go much more smoothly at Chicago Stereo Camera Club. It is a gadget designed by B. C. Sherwood, CSCC program chairman. It consists of a pair of flexible shafts, about 6 feet long, which fasten to the horizontal and vertical alignment control knobs of the TDC Stereo Vivid projector. The shafts terminate in a small panel, where they are fitted with large knobs for easy adjustment. This system enables one person to handle these controls while sitting comfortably in a chair, out of the way of the people who are handling the slides and keeping track of them. It still requires adjustments while the picture is on the screen, which is not desirable, but it gets them over with as quickly and smoothly as possible.

Adjustment before showing is a feature of a device developed by Jack Stolp for use at the Rochester International Salon. It employs two projectors. While one is throwing a picture on the screen, the other is being adjusted to show the next slide. Each picture is projected, first, through a system of mirrors and lenses onto a miniature translucent screen before the operator's eyes. He makes the required adjustments, judging by the positions of the images on the miniature screen. Then, to show the picture, he slides the reflecting device to one side so the beams from the projector lenses travel straight to the big screen.

Another approach to the problem is used in the new Pola-matic projector. Its filters move aside so both images are depolarized while adjustments are made, then shift into place to show the picture in stereo. This avoids discomfort during adjustment at the cost of introducing a period of non-stereo viewing as each picture is thrown on the screen.—



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WHAT'S NEW - TRADE NOTES AND NEWS

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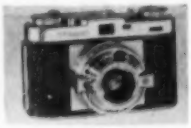
CAMERAS



EDIXA MODEL D 35-mm camera is imported by Camera Specialty Co., 765 Bronx River Rd., Bronxville 8, N.Y. It has a rapid-winding lever which simultaneously cocks shutter and transports film and a coupled rangefinder insures correct focusing, in this camera extending from three ft to infinity. The lens is a hard-coated, color-corrected Isconar *f*/2.8 and the Prontor shutter has speeds from 1 sec to 1/300 and bulb. Built-in synchronization is controlled by a lever pointing selectively to M, X, or V setting. Price is $59.95.

PRO COLOR CAMERA is an inexpensive, fixed-focus 35-mm camera sold preloaded with 12-exposure Eastman color film, and costing $7.50. The body is of polystyrene and a carrying case is provided. Maximum aperture is *f*/11 and shutter speed is 1/50 sec. Processing and mounting the 12 transparencies costs $2.50, including the 12-frame strip of color film. Maker is Beaurline Industries, Inc., 740 Rossmor Bldg., St. Paul 1, Minn.

OPTIONAL LENS EQUIPMENT for Graphic 35 camera is announced by Graflex, Inc., Rochester, N. Y. The new lens has a speed of *f*/2.8 (standard lens is *f*/3.5) and cameras equipped with it also embody an additional color-coding bank in their Spectramatic flash settings to deal with new, faster films such as Ektachrome and Anscochrome. With leather carrying case and Graflash FL, the new *f*/2.8 Graphic 35 is priced at $99.50.

NEW ZEISS CAMERA KITS are available for those desiring to buy complete outfits in a single carton, according to Carl Zeiss, Inc., 485 Fifth Ave., New York 17. Kits contain camera, Ikoblitz O flash unit with zipper case, and an eveready carrying case for camera. The kit with Contina II camera and Novar *f*/3.8 lens is priced at $89.50, and a second with the same camera and Novicar *f*/2.8 lens is $99.50.

CAMERA ACCESSORIES

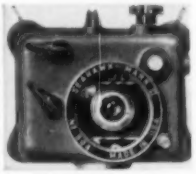
REFLEX VIEWER for the 4x5 Graphic View II and the 4x5 Graphic cameras with Graflok back is made by Filmtronics, Inc., 96 Huntington St., New London, Conn. It is painted in silvertone finish to match that of the cameras, snaps into place easily, and gives a right-side-up image. Price is $5.95.

CANON RAPID WINDER which fits directly all Canon cameras from Serial No. 50,200 up, is said to make Canon the fastest-winding camera. It is installed by replacing the base plate and has a retractable trigger and removable hand grip permitting fast single-stroke winding, while the hand that trips the shutter remains in position for continuous "firing." Price is $19 and a free brochure is available from Canon Camera Co., Inc., 550 Fifth Ave., New York 36.

SLIP-ON FILTERS of new type are announced by Tiffen Marketing Co., 71 Jane St., Roslyn Heights, Long Island, N. Y. Types are as follows: 1) yellow cloud filter; 2) portrait attachment; 3) slip-on filter for Kodacolor Indoor film when shooting outdoors; 4) slip-on filter for Ektachrome "F" film when shooting outdoors. Each type is mounted in gray-anodized plastic and is priced at $1.95 in each of three sizes.

EXPOSURE METER named Sekonic Compact is announced by Photographic Importing & Distributing Corp., 135 Broadway, New York 6. Range of film-speed scale is from 10 to 800, speeds from 4 sec to 1/1000, and *f*-stops from *f*/1 to *f*/32. Sekonic Compact slips into the camera's accessory clip but can be used in that position or off the camera. Price $9.95, with leather case.

PYRAMID TRIPOD, a product of Pagliuso Eng. Co., 113 W. Harvard St., Glendale 4, California, is of lightweight tubular construction, has three sections, and closes to 22 inches. Leg locks are positive in action and it is claimed that telescoping leg sections cannot bind or separate. Price with ball-swivel head is $9.95; with the same head and Pyramid Extendo, which adds 11 inches to height, price is $13.95; and with Extendo and pan-tilt head it is $15.95.



SEAHAWK UNDERWATER CAMERA CASE for Argus C-3 camera is called Mark II case by its maker, Seahawk Products, 1560 Placentia Ave., Coral Gables, Fla. The housing is of cast aluminum anodized to resist salt-water corrosion, and knobs control film wind and lock, and shutter operation. The lens port is of optically correct plastic. Built-in focusing control and ports for underwater synchronized flash or electronic flash are provided and the case is guaranteed against leakage to a depth of 150 feet. Price of the case is $59.95.

FILTERS for Hasselblad 1000F and Hasselblad Superwide 2¼x2¼ cameras are announced by Willoughbys, 110 W. 32nd St., New York 1. They are of optical glass ground and polished by special techniques and are mounted in dull-black-finish aluminum holders. Each has an identification that indicates color, diameter, and exposure factor. Hasselblad Optical Glass Filters for 1000F model come in seven colors and types and are priced at $8.95 each; those for Superwide 2¼x2¼ are five in number and cost $12.95 each.

LENSES & ACCESSORIES

ACCESSORIES FOR GRAPHIC 35, product of Graflex, Inc., Rochester 8, N. Y., are Proximeter I and II, both near-focusing devices that utilize the built-in range and viewfinders of the camera. With the Proximeter, Graphic 35 will focus objects as close as 12 inches. Sufficient parallax correction is said to be

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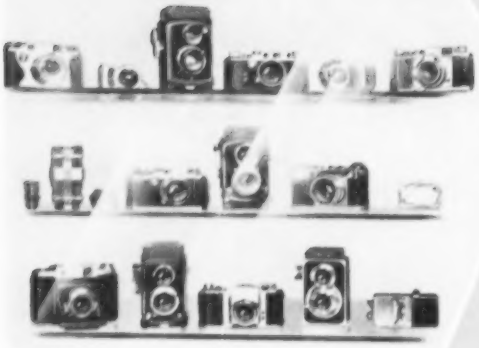

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provided throughout the focusing and viewfinding range. Respective ranges are: Proximeter I, 28 in. to 20⅜ in; Proximeter II, 15⅝ in. to 12⅛ in., and price is $22.95 for either type.

ELITAR SOLIGOR 15-mm *f*/1.9 lens is distributed by Interstate Photo Supply Corp., 17 W. 17th St., New York. It is for use with Series V filters, has standard "C" mount and click-stop diaphragm, is fully color-corrected and precision-tested, according to Interstate. Price is $54.95 and a brochure will be sent upon request.

CANON ULTRA WIDE ANGLE lens is claimed by its U. S. factory branch, Canon Camera Co., 550 Fifth Ave., New York, to be the world's fastest 25-mm lens. Maximum aperture is *f*/3.5 and angle is 83 degrees, with wide-open edge-to-edge correction said to be the best yet achieved. The new lens is set in a lightweight mount and has new amber coating resulting in improved color balance in color pictures. Price is $175 and a brochure is available.

PROXAR LENS KIT for close-up photography is announced by Enteco Products, 610 Kosciusko St., Brooklyn 21, N. Y. Three Proxars of different powers are furnished in each kit—plus 1, plus 2, and plus 3 diopters. Since any two may be combined magnification is available to 5 diopter powers. Kits are available in Series IV, V, VI, and VII sizes, and prices range from $9 to $14.

ALGULAR 135-mm *f*/3.2 lens is imported by Karl Heitz, Inc., 480 Lexington Ave., New York 17. It is said to be a true telephoto and consists of five elements in an "Extensan" lens mount of 20-mm extension range. Focusing is possible from 3 ft to infinity and extension tubes or bellows may be employed to permit ultra close-ups down to a 1:1 subject-to-negative image ratio. Angle of field is 20 degrees, length, 3¼ in., and weight 9½ oz. Price is $129.

IHAGEE-ZEISS STEREO UNIT for 35-mm Exakta cameras is now in production at the Ihagee-Zeiss factory in East Germany. The attachment contains a binocular for viewing and gives true-to-life three-dimensional pictures. Price will approximate $180, according to Exakta Camera Co., 705 Bronx River Rd., Bronxville, N. Y.

WIDE-ANGLE LENS attachment for Realist 45 camera, product of Realist, Inc., 315 W. Court St., Milwaukee, Wis., increases subject coverage by approximately 40 percent. It consists of a pair of 4-element, 25-mm lenses, and has its own parallax-corrected optical viewfinder. Pictures may be taken as close as 15 inches with the new attachment. In use, the wide-angle supplement is mounted over the twin lenses of the Realist, then secured by a collet-type locking device. List price is $119.50, with a top-grain cowhide carrying case.

PROJECTION & VIEWING EQUIPMENT

NEW REAR-PROJECTION SCREEN material, known as WDD (wide-dispersion, dark), is a product of Klearcite Screen Co., 1432 North Orleans St., Chicago 10. It is laminated and embossed to produce over 2,000 prismatic projections per square inch, and these result in completely uniform distribution of light throughout the screen area, whether black-and-white or color is projected. The new material is said to be flexible, portable, flameproof, and washable, and is priced at $1 per sq ft.

THREE SLIDE-BINDING ACCESSORIES have been introduced by Kling Photo Corp., 235 Fourth Ave., New York. Minox trans-

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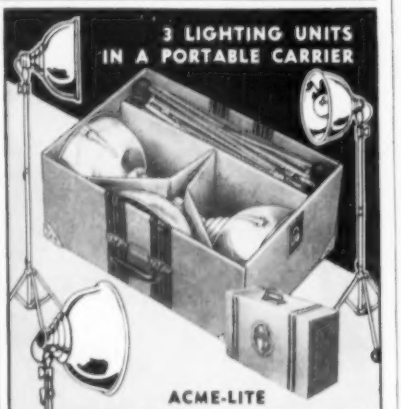

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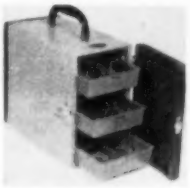
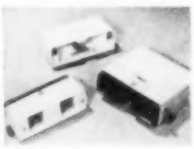
parency cutter has 5x magnifier and operates by thumb pressure on the viewer's handle, is priced at $14.95. Minox slide-binding kit contains slide frames, metal masks, and cover glass for making 50 complete slides. Cost is $8.50. Minox slide safe is made of clear plastic and has 50 individual numbered slots for 30x30 Minox slides. It has a foam-rubber lining and dust-proof cover, and measures 3x6½x1½. Price is $2.25. See your Minox dealer.

AUTOMATIC REWINDER for movie film is being introduced by its manufacturer, O'Dell Industries, 3975 Lake Michigan Drive, Grand Rapids, Mich. The product, known as O'Dell-O-Matic, is said to be completely automatic, requiring no power other than that furnished by the projector. Through its use, rewinding is accomplished during projection of the film, and it is claimed that scratching is greatly reduced. The unit includes film-base roller plate, three reels, two hubs, and three film containers in a sturdy storage container. Models 804, for 8-mm films, and 1604, for 16-mm, both in 400-ft capacity, are priced $19.95; Model 800-B, for Brownie 200-250-ft capacity, is $18.95. Price for other models will be furnished on request.

SLIDE TRAY for the Revere Automatic slide projector is announced by Yankee Photo Products, 3325 Union Ave., Los Angeles 23. A slide retainer holds slides firmly in place when the Yankee tray is carried about. Capacity is 36 slides in any type of mount and numbering provides easy identification. Trays are boxed in pairs and the box can be used as a filing case. Price, per pair, with slide retainer, is $2.85; without the retainer it is $1.85 per pair. Further information is available from the company.



SLIDE SAFE, a three-drawer luggage-type slide carrier especially designed to hold Pavelle Slide File Boxes, is announced by Pavelle Color, Inc., 533 W. 57th St., New York 19. The Pavelle Slide Safe has three slide trays each of which will hold 12 boxes, providing a capacity of more than 750 slides. Construction is of wood covered with plastic. Price from dealers is $5.95.



STEREO GRAPHIC VIEWER, a new product of Graflex, Inc., Rochester, N. Y., may be used with or without its battery-powered light source. To use the viewer with external artificial or daylight illumination the end containing lamp and battery is detached. Additional features are eye-width adjustments and selective focusing. Price of the two-tone blue-and-white stereo viewer is $12.95.

FLASH

REGULAR AND KOIL KORDS for the new Rolleicord and Rolleiflex cameras are now made by Praco Photo Products, 2288 Amsterdam Ave., New York. Synchro connectors of cords lock into the receptacles of cameras, preventing disconnection. Koil Kord Model SC-7, for Argus C3 and Argus Flash, is priced at $2.95, as is Model SC-6. The standard 18-in. Model S-6 (not coil-type) costs $1.95.

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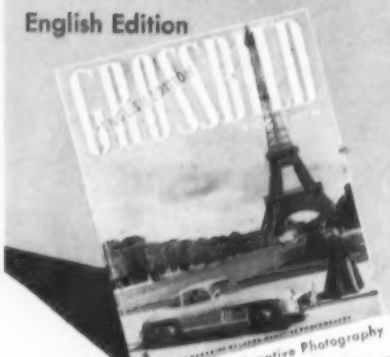

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TWIST-A-LITE is a new flash extension made by Aetna Optix, 350 W. 31st St., New York 1. It is a flexible gooseneck, with reflector and plug, designed to fit into a standard flashgun and permits placement of the flash reflector in any desired position for high- or low-angle lighting or bounce-flash. Price is $6.95 in all camera stores.

SOUND PROJECTION EQUIPMENT

RECORDING TAPES, Irish Brand, are now being delivered with an improved 7-in. reel with 32 square inches of indexing area. The manufacturers, OffRadio Industries, Inc., Opelika, Alabama, designed the new reel in accordance with the recommendations of many radio stations and recording-studio engineers, it is stated. Much enlarged side openings facilitate threading. Prices of tapes with the new reel have not been increased.

SCOTCH BRAND NO. 111 magnetic recording tape has again been reduced in price according to its manufacturer, Minnesota Mining and Mfg. Co., St. Paul 6, Minn. The new reductions bring the cost of the 1200-ft reel from $4.70 to $3.50, and that of a 600 ft reel from $3 to $2.25.

DARKROOM EQUIPMENT

NEW 35-MM ENLARGER imported by Karl Heitz, Inc., 480 Lexington Ave., New York 17, is the Primos Tereflex 35, for which fast handling is claimed, through a pull-in push-out single-lens reflex system with built-in test negative. After adjusting enlarger head for size the reflex system is pulled into place and after focusing it is pushed back to inactive position. A glassless film carrier which eliminates Newton rings can be supplemented by a top metal ring below the condenser. Magnification ranges from 1.2 times up to 8 times on the lens board, and larger when switching the enlarger head. Price, with 50-mm Cassar f/3.5 lens and red filter is $79.50; the cost without lens is $59.50.

SIOK UNIVERSAL PRINTER, made by F. Siok, 3002 Milwaukee Ave., Chicago 18, is a contact printer with many unusual features, such as 9 dodging rheostats, intensity rheostat, filter selector for 5 variable contrasts, voltmeter for checking line voltage, instant-contact on-an-off switch, 12 x 15 printing glass, etc. It was designed for portrait and commercial studios specializing in quality work. Price is $795 and complete information is available from Siok.

DARKROOM SINK of one-piece construction is manufactured by Burnham Products, Inc., 601 N. Athenian, Wichita, Kansas. Lack of seams and joints eliminates normal deterioration and the sink is said to be wholly resistant to the effects of photographic solutions. Plumbing is hidden by the backboard, which also serves as a shelf for storage. Price of the "Cabolite" sink is $145 with standard drain installed; double faucets of swing type are $19 and a Power Mixing Valve is $155. All prices are F.O.B. Wichita, Kansas.

MIRADOL is a new developer formulated by Ansco, Binghamton, N. Y., for automatic processing of double-weight roll pa-

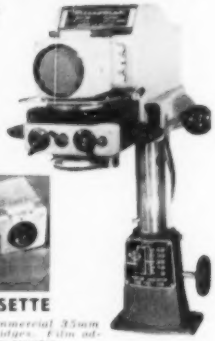
Durst 35MM

MICROMAT

The World's only

FULLY AUTO FOCUS COLOR ENLARGER

MICRO COPY CAMERA
MICRO FILM READER



MICROFILM CASSETTE

Holds up to 30 ft. of commercial 35mm film or 36 exposure cartridges. Film advance is coupled to frame counter.

Cam-coupled automatic focusing. Fitted with individually matched enlarging lenses. Head swivels through 180° for enlarging over 17 diameters. Patented negative carrier masks down to 1" x 1". Adjustable for horizontal and vertical distortion without altering optical axis. Built-in viewing window permits examination of size image field when micro-copying. Knob adjustment on baseboard permits shifting image plane off baseboard without affecting autofocus.

No other enlarger on the market today can meet these requirements for precision micro-film, color work and precise black and white enlarging.

Durst Enlargers available in 6 models from 35MM to 5"x7"

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per. One package unit makes both stock developer and replenisher. A starter solution is also included. The lack of carbonate in the Miradol formula permits minimum chemical permeation of the paper base and results in more thorough washing, it is claimed. Price of cans to make 25 gal of all three solutions is $6.60.

UNBREAKABLE BOTTLES and jars of polyethylene are made by the American Agile Corp., P. O. Box 168, Bedford, Ohio. The containers are of rigid construction, are leakproof, light in weight, and said to be completely unbreakable. Bottles have a screw cap and jars a friction-fitting, easily removable lid, and are designed for storing both liquids and solids, including crystalline powders. Prices for bottles are: 1-qt, $7.20; 2-qt, $8; 1 gal, $8.80; 3½ gal, $16.80; 5-gal, $22.80 each. Full information is available from Agile.

NEW ELECTRO-COLLOIDAL developing process said to permit direct blow-ups to 50 times negative size without graininess or loss of resolution, gradation, or contrast, is offered by Brak Film Laboratories, Ltd., 50 Court St., Brooklyn, N. Y. Brak is selecting a group of dealers as film-collecting depots.

FILM AND PAPER

KODACOLOR FILM, it is announced by Eastman, will henceforth be sold at a price which excludes the processing charge. In addition to licensing several other firms to process Kodacolor, in accordance with a Federal Court Decree, Kodak is offering for sale the chemicals and print materials used by the company, plus a new line of finishing equipment which simplifies Kodak's own processing methods. Kodacolor film already purchased at prices including processing charge, or such materials currently in dealers' stocks will be processed through the dealers without further charge. Film purchased under the newer arrangement should also be sent to processors through dealers. Prices without processing: 127, $1.10; 120, $1.25; 620, $1.25; 116, $1.75; 616, $1.75; 828, $1. Processing charge is 90 cents per roll. Kodacolor prints are 32 cents each, 5x7 enlargements cost $1.50 each, and 8x10s are $3.50 each.

COLOR PRINT production on Eastman's new Type R paper is offered by Lowell Color Slide Duplicating, 5518 Cahuenga Blvd., North Hollywood, Calif. The company has also been appointed by Sawyers as an authorized mounting station for Personal View-Master reels, and continues its services in duplicating reels and 35-mm slides.

PROCESSING SERVICE

EASTMAN KODACHROME film is now processed by Dynacolor Corp., Albion, N. Y. The service is offered through dealers or photofinishers and not directly to the film user, and prices will be competitive, with fast processing and handling featured. An expansion program will provide capacity to handle more than 3,000,000 rolls of film per year, employing machinery designed by the company's own engineers. List prices are the same as those of Eastman Kodak Company.

DELIVERY PACKAGING by Drewry Photocolor Corp., 550 W. Colorado St., Glendale 4, Calif., is in the Drewry Photocolor Slide-file. This is a plastic box, usable for storage of twenty 2x2 color slides. The file has a slip-on top and divided base and will also protect stereo color pairs mounted in the Emde metal mount. The file is Drewry's standard package for delivery of all orders for processed and mounted 35-mm color transparencies.

DYNACOLOR CORP., Brockport, N. Y., has bought a new plant to replace its present facilities, to handle its new service, Kodachrome processing, and to increase capacity for selective redevelopment of other color films and duplication of 16-mm commercial motion pictures. The new 3-story building has 70,000 ft. of floor space.

PUBLICATIONS

OPTICAL AIDS CATALOG of 64 pages, containing more than 1,000 optical items, is offered free to readers by Edmund Scientific Corp., Barrington 7, N. J. Included are many war-surplus items, offered at a fraction of their original cost to the government. There are many photographic items, such as lenses, projectors, condensers, and filters. Included is much factual informa-

make your new flash a... Heiland

A. P. Photo by Harry Goodman

President Eisenhower throwing out the first ball at 1955's opening baseball game. Every white circle represents a Heiland flash unit.

The flash used by 5 out of 6 major newspapers

The overwhelming majority of news and professional photographers—who know they've *got* to get the picture—use Heiland flash units. They've learned that Heiland is the one brand they can depend on for faithful day-in, day-out performance... and the most advanced *proved* engineering features.

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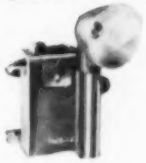

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The only electronic flash inexpensive enough for real amateur use, yet capable of heavy-duty professional performance. Amazingly light and compact. Choice of 3 power paks—to fit your exact need. Flashes pictures for 1 cent or less.

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KONICA has always offered *more* "features that count" for the money . . . but never so much as this brand new model. Here at last, you can own one of the world's finest high speed lenses, on a camera that *surpasses in quality* many costing as much as $200. Konica's single window range and viewfinder offer one of the easiest focusing cameras . . . its fingertip lever-focusing make for speedy operation . . . its brand new MFX-synchronized shutter provides accurate flash exposures at *all* speeds, with all kinds of flash equipment . . . slow and fast speeds to 1/500th . . . fully hinged back for easier loading . . . and many, many more features. And, of course, typical Konica quality workmanship that has kept its manufacturer at the top of Japan's photographic industry roster. You must see Konica to fully appreciate it, so ask your dealer for a comparison-demonstration. We'll gladly send our illustrated Konica Guide Book for the asking.

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tion on all types of optical instruments and their components. Write Edmund for your copy.

PHOTO-LAB-INDEX is again available, announces its publisher, Morgan & Lester, 101 Park Ave., New York 17. Over 1400 pages are divided into 24 sections by tabbed index guides and the binder opens half way for reading and to a fully open position for replacement of pages. Price is $17.95. Quarterly Supplement Service continues on a subscription basis, $3 a year.

COMPLIMENTARY COPY of **Motion Pictures Through the Microscope** (a 28-page booklet) may be had by writing Sales Service Div., Eastman Kodak Co., 343 State Street, Rochester 4, N. Y.

SYLVANIA ELECTRIC PRODS., INC., 1740 Broadway, New York 19, announces the availability of a booklet titled **How to Make Movies Your Friends Will Coax You to Show,** by film director Leo McCarey. Booklet is free with a purchase of a Handy Pack containing two 375-watt Sylvania movie floodlamps.

SMITH-VICTOR announces two new publications on lighting equipment: No. P-56, listing reflectors and stands for amateurs and professionals, and No. A-56, a listing of movie lighting for amateurs. They are available through dealers or from Smith-Victor, Griffith, Ind.

THREE BROCHURES on photographic publications deal with Rayelle-Fountain photo and cine books, Rayelle-Heering camera books, and Rayelle pictorial and travel books. For your free copy write Rayelle Publications, 76 W. Chelten Ave., Philadelphia 44.

BROCHURE on 35-mm Exakta VX camera is offered free by Exakta Camera Co., 705 Bronx River Road, Bronxville 8, N. Y. It presents comprehensive coverage of Exakta features for both novice and advanced photographers and a price list of VX and other cameras, lenses, and accessories is included.

KONICA BOOKLET, offered free by Konica Camera Co., 76 W. Chelten Ave., Philadelphia 44, contains 16 pages of valuable hints and reference charts for better photography. In addition, features of the various Konica cameras and accessories are described. Konica dealers also have this book.

TIFFEN free brochure describes the new Tiffen Hi-Trans Filter line and explains which of the line are best suited for various lighting conditions and different types of film. Also available is a complete catalog of Tiffen's general line of more than 2,300 filters and accessories. For your copies write Tiffen Marketing Corp., 71 Jane St., Roslyn Hts., Long Island, N. Y.

TAKE A TIP FROM HOLLYWOOD is a booklet for home movie makers giving information on film economy, increasing audience interest, panning, new ways for indoor-color movie-making, timing, transitions, close-ups, accessory lenses, etc. Available at photo dealers or from Elgeet Optical Co., 838 Smith St., Rochester, N. Y., price is ten cents.

SUPREME WINTER BULLETIN of film, paper, and supplies is available upon request from Supreme Photo Supply Co., 11 Broadway, New York 4.

CURTAIN TIME is the name of a brochure offering suggestions and information on color-slide shows, storing, and preserving slides. Available on request from Sales Service Div., Argus Cameras, Inc., Ann Arbor, Mich.

KODAK DATA BOOK entitled **Photographic Production of Slides and Film Strips** is designed to help photographers carry out the necessary steps in transforming flat copy and photographs to filmstrip or slide sequence, both color and black-and-white. Copies are priced at 50 cents through all Kodak dealers.

EASTMAN KODAK CO., Rochester 4, N. Y., announces the availability of a handbook entitled **Use, Maintenance, and Repair of Professional Equipment.** Price is 50 cents.

SMPTE wide-screen booklet is offered by the Society of Motion Picture and Television Engineers, 55 W. 42nd St., New York 36. It presents an easily understood outline of present-day techniques and the ways in which they differ from former "standard" procedures. No attempt is made to evaluate systems. The booklet covers 35-mm sound pictures, Cinerama, CinemaScope, Vista-Vision, Superscope, and Todd-Ao wide-screen systems.

GROSSBILD TECHNIK, a German quarterly dealing with large-negative photography, is now published in an English edition. It treats particularly with technical and esthetic aspects of advanced photography and with the use of the camera in science, industry, criminology, advertising, fashion, and other specialized fields of advanced work. Distributor is Kling Photo Corp., 235 Fourth Ave., New York, and annual subscriptions cost $3.00.

RECENT PURCHASERS OF "GRAPHIC GRAFLEX PHOTOGRAPHY" may obtain a valuable 16-page New Graflex Equipment supplement, for insertion in the 10th Edition of that work. The supplement, with its comprehensive new information, is being added to all current copies of the book. If you have one which lacks the supplement, write Morgan & Lester at 101 Park Ave., New York 17, or see your dealer. It is free of charge, to book purchasers.

PRACTICON Co., 705 Bronx River Rd., Bronxville 8, N. Y., offers a brochure on 35-mm Pentacon and Praktiflex cameras. The publication explains single-lens-reflex photography with both cameras and a separate section has a price list of cameras, lenses, and many accessories.

EASTMAN KODAK COMPANY, Rochester, N. Y., has revised its data book on Aerial Photography. Titled **Kodak Materials for Aerial Photography**, the publication costs 50 cents from all Kodak dealers.

QUESTIONS ON LAMPS for photographic purposes are answered in a new book prepared by G-E and available from all dealers. Titled **G-E Photolamp and Lighting Data Booklet**, the book measures 3½x4½ and contains thousands of facts on films, flash and flood lamps, and picture-taking. A description of "triangle lighting" is included, with diagrams and actual photographs.

TIFFEN POLAROID FILTER use is explained in a new, free brochure available from Tiffen Marketing Co., 71 Jane St., Roslyn Heights, Long Island, N. Y. Tiffen points out that this type of filter can be used as a neutral density filter, reducing the light a maximum of 2½ times.

ELGEET Optical Co., Inc., 838 Smith St., Rochester, N. Y., offers a brochure describing its new Cine-Turret attachment which converts most 8-mm single-lens cameras into 3-lens turret models, complete with standard, wide-angle, and telephoto lenses.

BESELER ENLARGER GUIDE, published by the Charles Beseler Co., East Orange, N. J., contains 128 pages in which are described all operational details of Beseler enlargers. There are chapters on photo murals, copying, accessories, enlarging papers, enlarging tricks, etc., with many illustrations. Price of the book is $1.95, at all photo stores. Publisher is Greenberg.

MISCELLANEOUS

SILVER RECLAIM KIT is announced by States Smelting & Refining Co., 615 Victory St., Lima, Ohio. Waste print and film fixing solutions are poured into a 3½-gallon plastic pail. When full, a filament dropped into the solution settles silver on the pail bottom. The deposit is mailed to States and you are paid back after a refining charge is deducted. New box of filaments is then supplied free of charge. Kit is priced at $4.95.

ANSCO MOVIE FILMS, color and black-and-white are now being returned to users from the Union, N. J. and Chicago processing laboratories by first class mail. Ansco, Binghamton, N. Y., announces this cuts down the transit time of processed film a week to about two weeks.

CHANGE OF ADDRESS is announced by The Nega-File Co. Formerly located at Box 501, Easton, Penna., all production facilities have been moved to larger quarters on the Edison-Furlong Rd., Doylestown, Penna.

JIFFY PICTURE HANGERS, a product of Jiffy Enterprises, Inc., 150 N. 13th St., Philadelphia, have been reduced in price from 25 cents to 19 cents for each package of six hangers. Increased volume of sales has permitted the price drop, according to the company.

(Continued on page 120)

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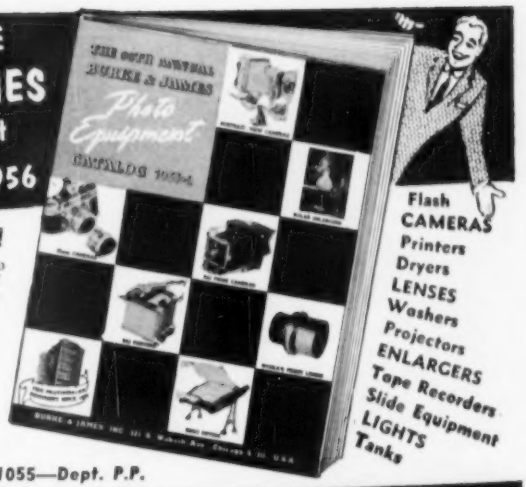
BURKE & JAMES
Photo Equipment
CATALOG for 1956



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Processes 16mm and 35mm Film Immediately After Shooting!

First Choice of the Professionals . . . A Simple, Efficient, LOW-COST means of processing up to 200 ft. of 16mm or 35mm (also 46mm, 70mm) film • UNIFORM Processing • 3 Scratch-Proof Nesting Tanks — Reel • STAINLESS STEEL. FULLY GUARANTEED—from **$89.**

NEW 35mm "Day-Lite" BULK FILM LOADER

With Automatic Frame Counter. Stashes your 35mm Film Costs . . . Reloads film cartridges with Bulk Film for less than 1c per shot. Spooled or unspooled Bulk Film (No Scratching) Any 35mm B&W or Color, Eastman, Ansco, DuPont, Leica, Contax, Exacta cassettes, etc. No darkroom necessary. No darkroom back GUARANTEE. Use Bulk Film and Save! **$11.95**

Snap Hidden Close-Ups with the Versatile DE GROFF
Airway Shutter Release

Operates most cameras up to 50 ft. away without movement or loss of accuracy. Stand anywhere—squeeze the bulb—and that impossible shot is yours!
*Reg. (Ciroflex, Boisey, etc.) **$6.50**
*Lrg. (Polaroid, Graphic, etc.) **$9.00**
(Bulb & 10 ft. Tubing $2.25)

NEW PERLE JR. 120 ROLLFILM (2¼x2¼") CAMERA

. . . with coated F/3.5 (75mm) Steiner sharp cutting lens in Vario shutter. Speeds: Bulb—1/25 — 1/200 sec. Flash sync.; Viewfinder; Shoe for accessories; Excellent B&W or Color; all metal — FULLY GUARANTEED. Like a $50 camera — **$27.50** plus F.E.T.

Sensational New DIAFIX 35mm Strip Printer

Prints pocket size photos; 35mm strip film; and transparencies from your 35mm negs (on perforated paper or film) . . . simply, safely, quickly . . . in B&W or color. Use Enlarger lite. Precision engineered. Excellent results—GUARANTEED . . . only **$21.**

PAXETTE 11 M 35mm CAMERA Outfit

With 3 Interchangeable Lenses: Telephoto, Wide Angle, Anastigmat — Rangefinder & Leather Case! Features full synchro for flash, strobe. Speeds from B—½—1/300 sec. Fully GUARANTEED. Complete outfit..... **$139.50** plus F.E.T.

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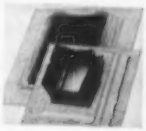
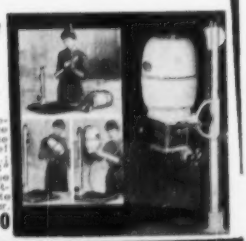
Sliding, Reducing Backs



A Real Film Cost Saver for practically all 4x5", 5x7", 8x10" and 11x14" Commercial View and Portrait Cameras • Automatically Centers Image! • Ground Glass Focusing • No Re-aiming! All Fully GUARANTEED. From **$24.00.** Polaroid Land Camera Backs available . . . for 5x7" and 8x10" view cameras only.

SOLAR HIDE-A-WAY 35mm ENLARGER
Like a Darkroom in a Suitcase!



Speedy "store-away" convenience plus SOLAR blue ribbon performance! Portable — 20 lbs.; 24" high; F/3.5, 2" coated Tessar type Lens; 2-year GUARANTEE. Complete with Lens; Neg. Carrier & Case.. **$79.50**

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NOW YOU CAN PREVENT

washouts

WHEN USING HIGH-SPEED FILMS

Tiffen®
NEUTRAL DENSITY FILTERS

Now you can use Hollywood's method of controlling the quantity of light that reaches your film, without change of shutter speed or diaphragm stop. **And with the new high speed films, this is more necessary than ever before.** Too much light is as harmful as too little, creating "washout" of detail and tonal gradation. Tiffen supplies Guaranteed-for-Life Neutral Density Filters **that hold back the extra light, yet don't affect color.** Thus, they are used for fast black & white as well as color films. And, of course, they embody all the Tiffen quality features that have made it the No. 1 Filter and Lens Accessory in the World.

If you want to shoot portraits with plenty of sunlight, and lens "open" for subdued background effect . . . or if you want to shoot outdoor action with slow shutter speed, to create the effect of "motion," Neutral Density Filters are a "must"!

Type	X2	X4	X8	X10
Exp. Factor	1/2	1/4	1/8	1/10

Series Size

21.5mm	#4	#5	#6	#7	#8	#9
$1.65	1.65	1.95	2.25	4.50	8.00	10.75

See the complete Tiffen Line at your dealer, or write for Free Catalog illustrating Tiffen's 2300-plus accessories.

Tiffen MARKETING CO.
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CANDID SHOTS by the Editors

COLOR Photography Annual

There will be a bright new star in the photographic firmament, beginning in mid-May. The Editors of POPULAR PHOTOGRAPHY and PHOTOGRAPHY ANNUAL are now preparing COLOR PHOTOGRAPHY ANNUAL, a big, brilliant bookful of the best color work of all the world's professionals and amateurs. It will be the first book of its kind ever published anywhere, so far as we know. In addition to burgeoning showcase of four-color reproductions, it will bring you vital and informative articles about color—its past, present, and future—and how you can make better color pictures yourself. New faster films and improved color-printing techniques are making color more interesting to more people, and COLOR PHOTOGRAPHY ANNUAL responds to that interest in a big way. Look forward with us to May. You'll want a copy!

A Fine Swiss Magazine

After reading *A Swiss-Eye View of New York* (page 48) and looking at Emil Schulthess' remarkable pictures, you may be interested in knowing what kind of magazine it is that employs such a gifted photographer-editor. Well, it's one of the finest magazines in the world—beautifully conceived and edited, and superbly printed by a gravure process that is generally seen in this country only in expensive art books. Since it is published in Zurich, its language is German, but each issue has a "selective summary of the contents" and picture captions in English. Typically, each issue is built around a single subject; each of the "U.S.A." installments dealt with a different phase of American life and culture. Some newsdealers in the U.S. sell *Du*, but if you're interested and can't find a copy, write to Rayelle Foreign Publications, 5700 Oxford St., Philadelphia 31, Pa. Single copies are $1.00, a year's subscription $12.00, including the oversize Christmas number.

Du: a Schulthess "U.S.A." cover.

Promising Young Pro

Hugh Bell, who is profiled in this issue on pages 55-60, has come a long way in his camera career in just a short time. His rapid rise is detailed in our story, but we neglected to mention there that we had a hand in Hugh's progress. One of the first pictures he ever published in a national magazine appeared in our June 1954 issue, in a story about an exhibition by members of the American Society of Magazine Photographers. Later that same year, we bought an article from him for our home-movie section, and at the end of the year we found that he had won four prizes in our 1954 International Picture Contest. Since then we have watched his career closely, watched him grow in competence and self-confidence. We've made good use of his pictures—color as well as black-and-white. Now we're glad for the chance to publish a portfolio of his best work.

Inés de Torres

Hugh Bell

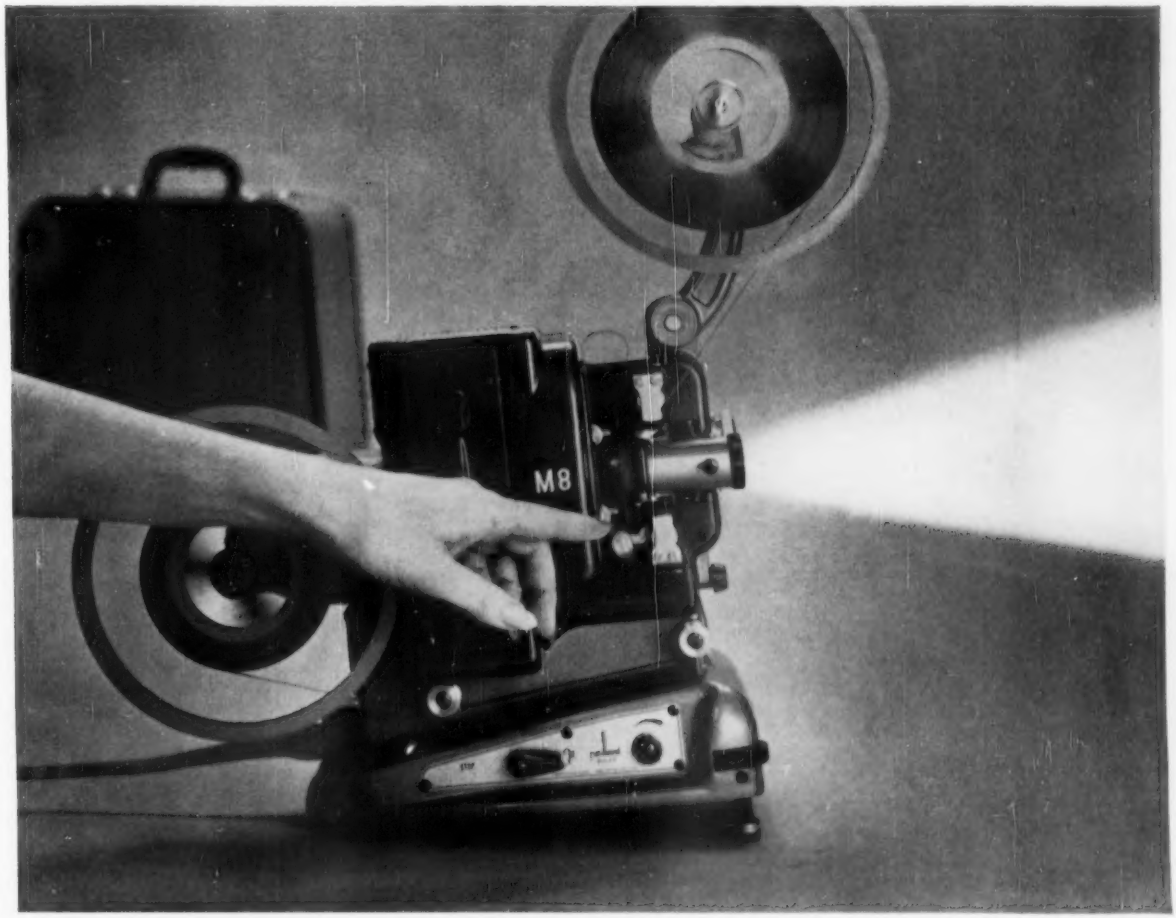
And Next Month . . .

Our April issue holds some surprises, in addition to the useful and thorough photographic articles you always find in *Pop*

(*Continued on page* 145)

Unretouched photograph of Thing.

Bolex Swiss precision . . . . . a marriage of skill and science



Your film never breaks, your movies are never interrupted — when you use the Bolex M-8 with this exclusive 'FilmGuard'. Note that the bottom loop can never be lost—even when the Bolex M-8 is run with the gate open!

New Bolex M-8 *safeguards your prized films*

The new M-8 projector — Swiss precision-crafted in the famous Bolex tradition — brings new brilliance, control, and film safety to your 8 mm projection.

The exclusive 'FilmGuard' device — shown in actual operation above — is one of the many unusual features that sets the M-8 apart. 'FilmGuard' gives positive protection against film breakage. The film loop can *never* be lost. A gentle, even tension is maintained even when bad splices and torn perforations pass through — even when the gate is opened for cleaning while the projector is running!

Ask your Bolex Dealer for a demonstration of 'FilmGuard' and the other important M-8 features listed here. See what Bolex Swiss quality can mean to you — in terms of performance, protection, economy.

BOLEX

A PAILLARD PRODUCT

NEW BOLEX 8 mm PROJECTOR FEATURES:

- extra bright 25 mm F:1.5 high-speed projection lens
- special condenser system for brightest 500-watt illumination
- advanced temperature control system
- lamp unit swings out for easy lamp replacement
- "snap" threading cuts film handling to a minimum
- exclusive ultra-rapid claw mechanism holds image rock-steady
- take-up reel is driven directly from the motor — without belts
- 400-foot rewind in 15 seconds
- single switch operates motor, lamp and room lights
- independent height adjustment *and* picture leveling
- image can be framed without altering picture's position on screen
- gate opens a full inch for easy film threading
- upper spool arm folds to form convenient carrying handle
- new, ultra-modern two-tone styling
- complete with handsome carrying case, only $169.50 INCL. F.E.T.

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Courtesy of Arax Photographic Co., Poughkeepsie, N. Y.

Photographs by Carl Lindquist

HOW TO BUY A USED CAMERA

By MARVIN RUBIN

There are many good buys in used cameras at your photo dealer's—here is what to look for before you make a choice

THE next time you are in your favorite camera store, don't look askance at the display case featuring used cameras. There are many good buys in that case—cameras that will offer years of satisfactory use. It only takes a few minutes of careful inspection and some simple rules to make a good choice.

The primary reason anyone buys a used camera is that it costs less than a new one. Perhaps you already have an excellent miniature camera and you may want a twin-lens reflex, or a folding camera, or even a press-type camera. It would be nice to have two new cameras, but not all of us are financially able to afford such equipment. Also, you may want to buy an enlarger to go with that second camera, or get that exposure meter you never did get. Since the cost will have to be cut somewhere the safest place to limit the expense is in the cost of the second camera.

Most used cameras come into a dealer's by trade-ins on newer equipment. Some cameras are sold to liquidate estates. A few cameras are sold by owners to raise ready cash. An extremely limited number are repossessed cameras, taken from credit-buyers who were unable to keep up payments. But in every case, these cameras and their origins are legitimate. *You will almost never find a stolen camera in the stock of a reputable dealer.* If such exists, the dealer doesn't know it has been stolen. With more expensive cameras, registrations and theft reports quickly turn up the dubious items.

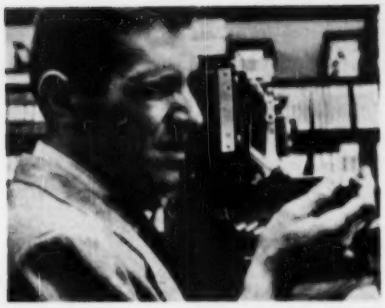
Always, and only, buy a used camera from a reputable, well-known camera store. Other business establishments may sell used cameras but only a camera store has the background and experience necessary to select a used camera in the first place—to really know if there is anything wrong with the camera to begin with and be able to judge whether it should be repaired before resale.

Only a reputable dealer, too, will stand behind the sale of a used camera and allow a guarantee period, similar to the guarantees on a piece of new equipment. If something goes wrong with the camera, you will be able to have the defect repaired or perhaps make an exchange. Almost every camera store allows a trial-use period (normally ten days) and will abide by your judgment

Here are nine points to check

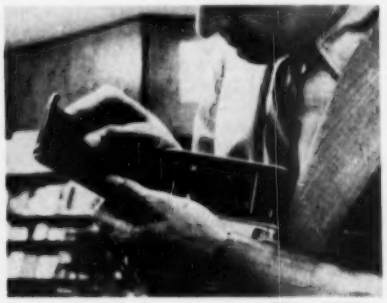
1 Examine lens for scratches or flaws by looking through it. If not removable, open camera back and inspect both sides of lens.

2 With lens open to widest aperture, close slowly to smallest aperture. Diaphragm opening should be consistently circular.



3 Check rangefinder scale with objects at known distance. See if infinity setting gives an unbroken image of distant objects.

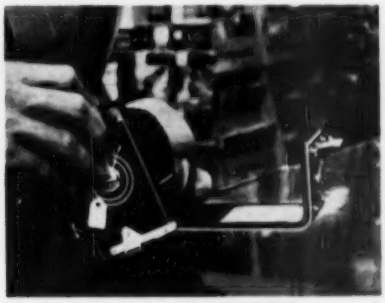
4 Light leakage is checked by moving light about while looking through back of camera with bellows fully opened and shutter closed.



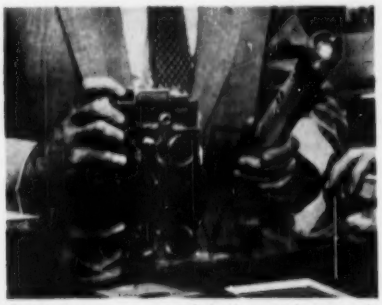
5 Inside of camera is checked for light leaks, rust, and pressure plate wear. Film plane should lie parallel with camera back.

6 Groundglass image on twin-lens reflex is compared to image on focal plane by attaching a piece of tissue to the film plane.

7 Shutter speeds in the slow range are compared against those on one or more new cameras. Repeat the process until satisfied.



8 Test film, provided by dealer, is loaded and camera is checked for film transport, exposure counter, and cocking mechanisms.



9 Flash tester, part of dealer equipment, is used to check flash contacts. Flash shots during trial period will check synchronization.

of the camera during this trial period.

Another fact important to you—when a reputable camera dealer takes a camera in on trade or any other manner, he inspects it thoroughly. If any mechanism or components of the camera need repair or replacement, the camera is sent to a qualified repair service and put into first-class operating condition before resale. Here again, only the dealer's integrity will protect you.

So much for the background of the used-camera market. Now to get right down to personal observation—first-hand inspection of the camera. Probably the first thing you'll notice about it is its general appearance. This is a good indication of the general condition of the camera. Of course, there's a lot that can be done to improve the looks of a camera but careful inspection may reveal many significant things. (Even though you may be in a well-known store there is nothing better than knowing what to look for. You and the dealer will both be happier in the long run.) A camera that looks worn has probably been used a lot, over a long period of time, or under strenuous conditions. Look for leather dressing and new chrome plating. Peek at the less accessible parts for signs of rust or long-standing dirt. If you find any of the foregoing, point them out to the dealer right away. On the other hand, if the camera has been repaired the exterior appearance has been improved upon as well.

Lens

Lens inspection is something personal. First, see if the lens is coated. You can easily tell by the color. Most lens coatings are bluish in color but a few are amber. Lens coating is desirable but not absolutely necessary. If the lens is coated, inspect the coating to see if there are any areas where the coating is missing. There shouldn't be.

If you find bubbles in the lens, don't worry unless they're big ones. Most lenses contain bubbles and are a natural result of the manufacturing process in making the glass. They are neither helpful nor harmful. Unless they're too big or there are too many of them in one spot, the bubbles will not interfere with picture quality.

Tiny scratches on a lens may be found, too. They also will not hurt the optical qualities but the perfectionist may not want a lens that (*Continued on pages* 37)

This three-image transparency is a true kaleidoscopic photograph—one of the first of its kind, according to photographer Angus McDougall

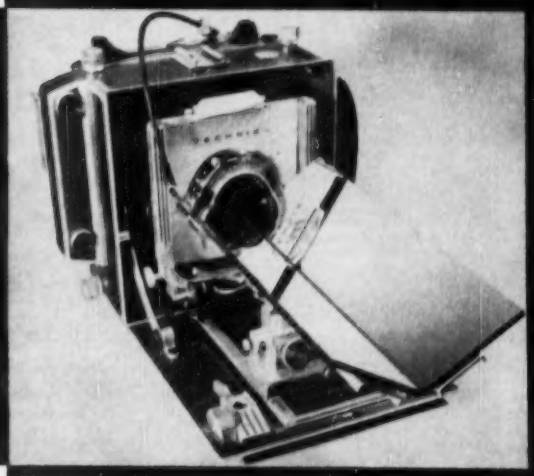
You're right- it's done with mirrors!

For many years, illustrators and experiment-minded amateur photographers have been placing mirrors or prisms in the optical path of the camera lens to produce a variety of reflection effects, off-beat distortions, and other fascinating compositional arrangements. A special effect that many have attempted and few achieved is that of the toy kaleidoscope which produces a multiplicity of equal-size, equally proportioned images in a symmetrical pattern.

An obvious approach would be to couple the camera lens to the viewing end of a toy kaleidoscope, which has its translucent viewing screen removed, and then aim the assembled unit at the subject. Unfortunately, this will not produce a sharp, detailed result under any circumstances, and only by the rarest coincidence will the proportions of the multiple picture image come out right.

Angus McDougall, an inventive mid-Western free-lance photographer who had previously spent many years as a feature photographer with the *Milwaukee Journal,* contends that his three-image color transparency of Gloria Benedict reproduced on the facing page is a first of its type—in that it reproduces a true kaleidoscopic effect in color, with utmost clarity and (*Continued on page* 78)

Photograph by Henry F. Larsen



Setup, above, shows how Angus McDougall shot kaleidoscopic color photograph of model Gloria Benedict on preceding page with three SR speedlight units (front light was used on left of camera for actual shot). Front-surfaced mirrors were carefully bracketed to camera bed in front of lens as shown above, right—construction, assembly details appear in text.

Washed out original has yellow sweater, pale sky and grass

TOUCH UP

Improve drab, washed-out color

Blue water color adds tone to sky

Here sweater is made red, grass green

Here is another example of how color retouching can add snap to a color shot. The original (lower left) shows a pale skin, faint sky, and loss of tone separation on the straw hat. In the retouched photograph (upper left), the sky is blue, the skin ruddy, the hat clear.

By MURRAY ZINN

YOUR COLOR SLIDES

transparencies with this safe, easy-to-use water-color method

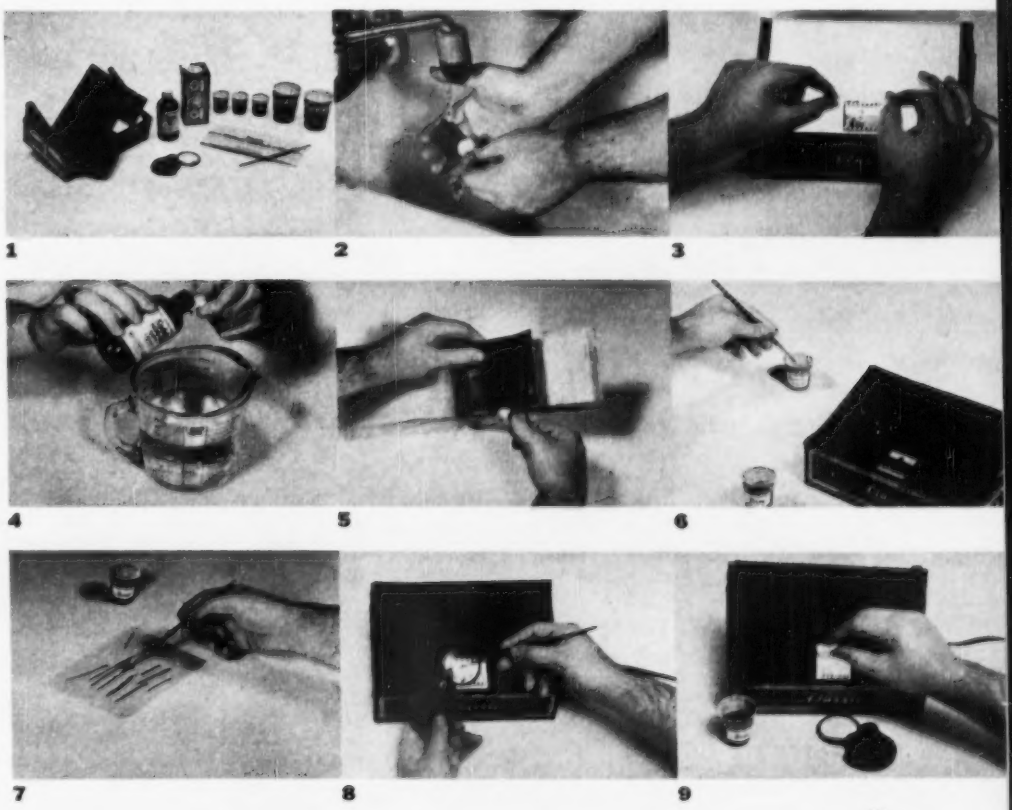
COLOR transparencies used to be a now-or-never affair. Once the picture was exposed, there was little the photographer could do to make a pale sky blue, change a color for better contrast, or even add color where there was none. However, a safe and simple method is available for touching up color transparencies after exposure. Using simple water colors, a sky may be darkened to provide better contrast, a washed-out color may be strengthened, and tone separation may be improved.

The only special material required is the water colors. Any water-soluble dye may be used. For convenience, we used Kodak Transparent Water Color Stamps. The only piece of special equipment is a spotting box which may be improvised from a cigar box. Otherwise, all the other items needed may be purchased in any camera shop or stationery store.

The first step is to remove the transparency from the mount by cutting off a ¼-inch strip from either side of the mount. Then, the lacquer coating protecting the film is removed by placing the transparency under cold running water, emulsion side up, and rubbing gently with a wad of absorbent cotton. Do this for about three or four minutes until the coating is dissolved. If small particles of coating still remain on the film, they can be removed by washing it a little longer.

Next, place the washed film on the light box with the emulsion side facing you. (Do not place the emulsion side down as it may stick to the glass and ruin the transparency.) Remove excess water with a damp piece of cotton before placing on the light box. A piece of tape will hold the film in place. To reduce eyestrain, cut an opaque mask to place over the light box, leaving an opening the size of the (*Continued on page* 136)

Here are step-by-step directions for using water colors



After assembling your materials **1**, wash the protective lacquer from the film **2**, before placing it on the light box **3**. Mix wetting-agent solution **4**. Cut the desired color from the book **5** and dissolve it in one of the cups **6**. After thinning out the color and shaping the brush **7**, you are ready for the actual work. Use a magnifying glass for 35-mm **7**. Apply colors with a light back-and-forth stroke to avoid any damage to the emulsion. Wipe off excess color with a damp wad of cotton **8**. When one color is dry another may be applied until the desired effect is attained. Note how the light box is blacked-out except for the area covered by the transparency.

A SWISS-EYE VIEW

OF NEW YORK

THROUGH LONG AND SHORT LENSES

Photographs by EMIL SCHULTHESS

NEW YORK is a photographer's dream city—no doubt of it. And some of the best pictures of the metropolis have been made by non-New Yorkers, even non-Americans. Emil Shulthess, for example, who has made some of the most impressive photographs of New York (and of the rest of the U. S.), is Swiss. He is an editor of the big, slick monthly magazine *Du* (which means "you"), and his American visit two years ago produced four thousand pictures, from which *Du* drew material for five "U. S. A." issues.

Schulthess, together with writer Hans Ulrich Meier, toured thirty states on a 16,000-mile itinerary that took them twice across the country, from New York to Oregon to California to Texas to Florida, and back up the Atlantic seaboard. They drove a new car, packed to bursting with cameras and photographic equipment, and with so much odd gear stowed on the roof that some awed Americans along the way thought the car must be equipped with television. Schulthess carried seven cameras, ranging from the commonplace Leicas and Rolleis to such home-grown apparatus as a 180-degree "fish-eye" camera which uses 4x5 film with a 1½-inch focal length, and a six-foot wooden construction resembling a (*Continued on page* 85)

Worm's-eye picture of Rockefeller Center was made with Schulthess' 180-degree camera, shown below. He designed and built the apparatus, using a British-made 38-mm Beck *f*/7 lens, shutter of Sinar view camera, and 4x5 back.

Forty-second Street canyon (on facing page) was photographed from Weehawken, N. J., across the Hudson River, with a Leica and 400-mm Telyt telephoto lens, employing reflex focusing device (shown at left). Exposure on Kodachrome was 1 second at *f*/5. Schulthess toured all of U. S., took 4,000 pictures. Five issues of Swiss magazine *Du* were entirely devoted to his photographs and appropriate text pieces. One was New York issue.

Spectacular color impression of Times Square at night was not made with long-focus or wide-angle lens. Schulthess, for a change, used normal 50-mm lens on Leica, one of seven cameras he carried on trip.

NEXT PAGE

KODAK'S NEW COLOR PRINT PAPERS

Co-author Sam Lang immerses Type C color print in buffer solution—step #11 in process, which continues under normal room lighting from Step No. 5 to the end.

A report on E-K's direct color print materials—Type C for printing Kodak color negatives and Type R for printing positive transparencies

By SAM LANG
Kurshan & Lang Color Service, New York
and BOB SCHWALBERG

Whenever photographers discuss the future of their craft, among the talk of superspeed zoom lenses and grainless films of infinite speed and resolving power, someone is sure to speculate about the day when the average amateur will be able to go into his own home darkroom and make color prints. The recent introduction of two new Kodak color-print materials seems to indicate that if this day has not yet arrived it is a not-too-distant tomorrow.

The two new materials are Kodak Color Print Material Type R (Process P-111) for making "pleasing" color prints from positive color transparencies directly by means of a single exposure, and Kodak Color Print Material Type C (Process P-122) for making high-quality color prints from color-negative materials such as Kodacolor and Ektacolor color-negative films.

To find out what we could about these new materials we set up a pair of experimental processing lines at the color photofinishing establishment of Kurshan and Lang, which is happily located just around the corner from the POPULAR PHOTOGRAPHY offices. Working with some borrowed Kodacolor negatives and prints obtained from Kodak we tried to find if we were capable of meeting the same standards of color-print quality that existed in the originals. At the same time attempts were made to produce good prints on the Type R paper working directly from color transparencies. Here's what we found:

Using a standard-make condenser enlarger employing a No. 212 enlarging lamp, our first step was to make a trial run in order to arrive at an exposure, using the recommended test procedure with the trial filter pack. This consists of a greenish heat-absorbing glass and a Wratten No. 2B ultraviolet cutoff filter. Four small test exposures were made on the same sheet of 8 x 10 Type C paper by rotating the sheet in the easel between exposures. This first test was unsatisfactory because even our shortest exposure, 20 seconds at *f*/8, was way too much.

In our second test we repeated the first test procedure, bracketing widely between 2 and 20 seconds at *f*/32 in order to obtain wide variations between prints. At 12 seconds we hit our necessary exposure pretty exactly, but the resulting print was again unsatisfactory, this time because of a supersaturation of red.

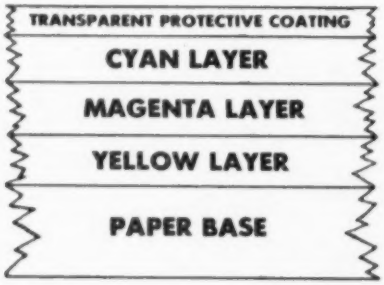
Now we encountered our primary difficulty, which was mainly mental. Because the print had too much red in it we had to stick a *red* filter into the enlarger's lamphouse, above the negative carrier. If it had been too blue we would, of course, have had to add a *blue* filter. Clear? At this point you're very likely as confused as we were, but bear with us. After we finish describing this test we'll get into the fascinating business of using filters in color printing.

For our third try we added a CC-50R, red color-compensating filter to the recommended trial-filter pack, in order to bring up the cyan. This it did, with a vengeance. Instead of being red-saturated, our prints were now cyan-saturated. Obviously, we needed less blue and more green.

Therefore, in our fourth test we used four different combinations of red filters to obtain cyan and magenta filters to get greens. In each case our basic 12-second exposure was maintained by applying the filter factors involved. The results were, for the first time, color pictures, but they were largely unsatisfactory because the prints appeared far too bluish.

Our fifth attempt, pictured on page 000, was the result of our second test series of exposures made through combinations of (*Continued on page* 132)

EMULSION-LAYER CROSS SECTION OF TYPE "C" AND TYPE "R" PAPERS



Sharpness of color image is enhanced by location of cyan dye image at top of monopack with yellow at bottom. Conventional arrangement had yellow, cyan reversed.

TYPE C KODAK COLOR PRINT ENLARGEMENT

Enlargement on Type C Kodak Color Print Paper, above, was made from No. 120 Kodacolor roll-film negative, below, with single filtered "white-light" exposure at Kurshan & Lang color-finishing laboratory. Note how yellowish hue of factory-processed Kodacolor Print, below right, was neutralized in top enlargement following a series of color-balance tests, and how local printing and dodging smoothed out the color gradations, unified entire composition.

ORIGINAL KODACOLOR NEGATIVE

STANDARD KODACOLOR PRINT

HUGH BELL

—a young photographer whose pictures of people pack a boxer's wallop and reveal a poet's insight

By JOHN DURNIAK

HUGH Bell is a husky, aggressive photographer. He cuts into life with his camera the way a boxer does with a right hook into an opponent's body. Though his pictures are rugged and rough, they are sensitive, and often deceptive with their unplanned quality.

When first meeting Bell, one is impressed by his size —6 feet, 2 inches tall; 207 well-proportioned pounds. And on first looking at his (*Continued on page* 80)

Blues singer Aida Moore sat listening to a playback on a new recording when Bell made this shot on a Leica. Photograph caught "blues mood," became album cover.

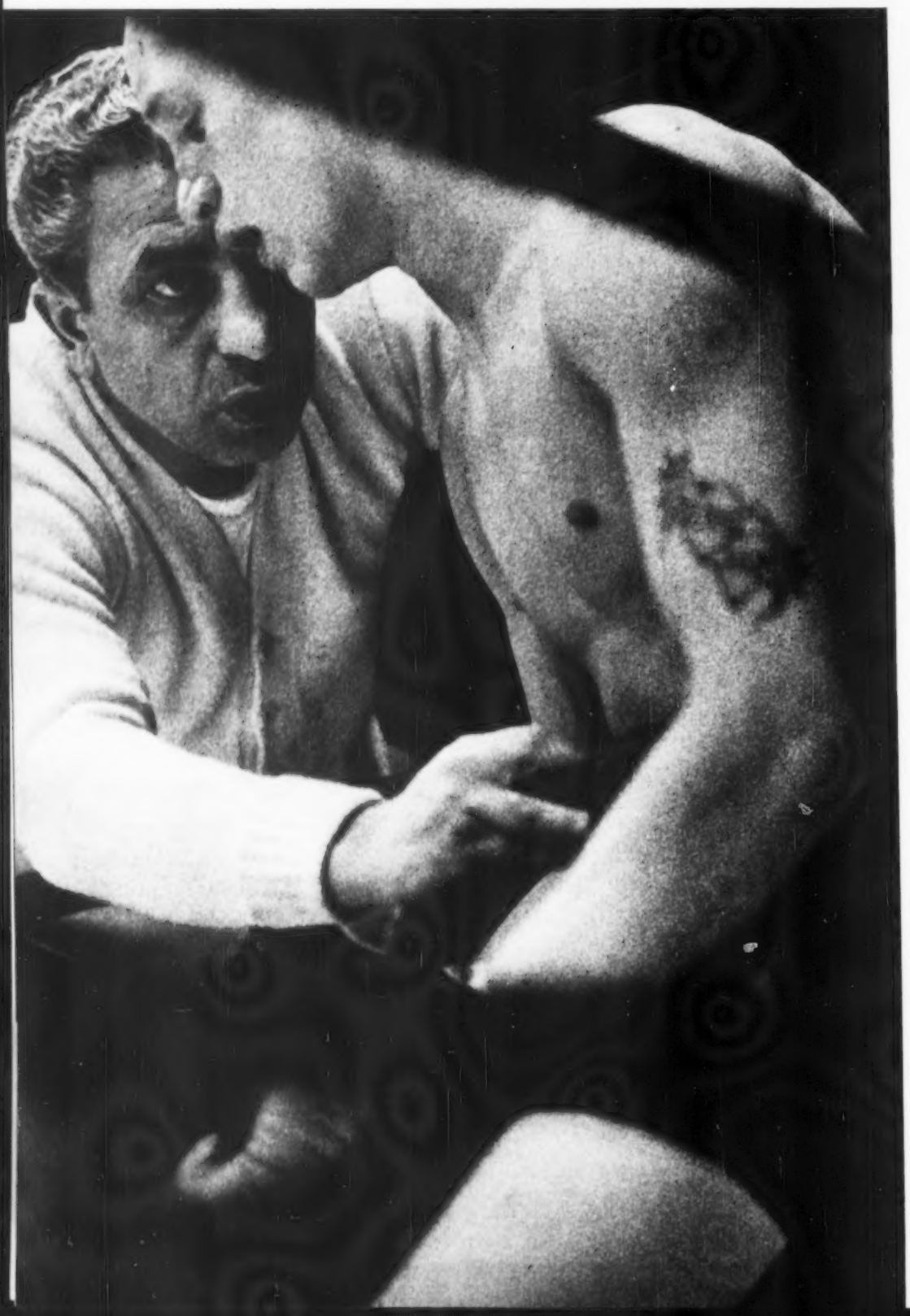
→

Bell waited for the long red rays of the setting sun before shooting this sensitive picture. His high camera angle and selection of 85-mm lens cut out all distracting elements.

pictures continued

Between rounds at New York's St. Nicholas Arena, Bell made this dramatic shot on Tri-X film with 85-mm lens on Leica. He rated film 800 ASA and force-developed.

Excessively warm ring light, and forced development caused this off-color but dramatic shot of boxer Milo Savage. Bell rated Ektachrome Type F at a speed of ASA 70.



Two 35-mm cameras usually hang from Hugh Bell's neck when he works. One is loaded with black-and-white film and the other with color. These shots (above and right) were made on the same assignment – coverage of Pantomime Art Theatre rehearsal. Off-beat color results from forced development. He used Daylight Type Ektachrome at 2½ times ASA rating.

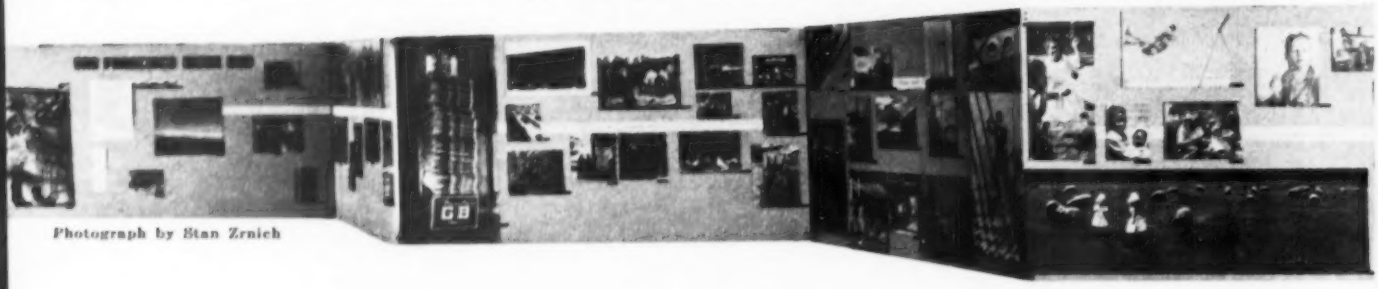
pictures continued

Saxophone player who parked his cigarette at the top of his instrument caught Bell's eye. Shot was made during jazz concert at the Open Door, a New York night club.

Bell stuck his camera between the curtains at Carnegie Hall to get this photograph of famous jazz pianist, Dave Brubeck. Note dramatic contrast between piano and stage.

Vivid example of Bell's ability to compose is this picture of three musicians. Backlighting helps emphasize most important lines of picture.

SAN FRANCISCO



Photograph by Stan Zrnich

The city at dawn as Philip Greene saw it on this memorable weekend. Greene is a photography student at the California School of Fine Arts.

By PHIZ MOZESSON

WEEKEND

A group of West Coast photographers tackles a city-wide assignment with exciting results that should challenge and inspire clubs and community groups everywhere

TEN people, meeting in a tiny San Francisco studio last July, set the stage for one of the most exciting photographic developments to take place on the West Coast in many years. Oddly enough, the group included an artist, a writer, a "name" photographer, an amateur, and several relatively unknown professional photographers. Prestige and personal achievement were of no moment here. Theirs was a greater interest—the desire to work together at photography and develop it as a genuine artistic achievement. And it was from this desire that the idea for a collective theme show on San Francisco grew, and an organization which was to break with existing platitudes in photography came into existence.

For a long time in this area, many photographers have felt the need for expression which was not being met by local camera clubs and professional organizations. To them, photography was a creative field which could be enjoyed co-operatively. To express life poignantly and simply, to break with the photographic clichés, and to do this *together* was their goal. This need to expand clear beyond themselves required only a vehicle, and it was the San Francisco Art Festival, then just two months away, which offered it.

The Festival, an annual cultural event which exhibits the works of thousands of Bay Area artists, attracts hundreds of thousands in audiences each year. Heretofore, photographers had played an insignificant and very individual role in this tremendous exhibit. A slight advance had been made in 1954 when a small group, calling themselves Photographers Gallery, made a modest showing at the Festival. But as with most artists, their art was not self-supporting, and the gallery closed soon after the Festival. It was the nucleus of this group, on the invitation of the Festival director, which came together in that small studio last July to discuss the future of their craft and to use the 1955 Art Festival's invitation as a springboard into that future. Out of the desire to bring recognition to photography as a legitimate member of the arts, the idea for a theme show took shape. But it was to be a collective effort, sparked and carried through by relative unknowns and gathering its strength from new and young photographers in the area. This was the fundamental philosophy of *Bay Area Photographers,* as the new group came to be known.

A co-operative theme show . . . but how? How, in two months, could you interest photographers, develop and execute a theme, screen and edit the results, and mount a display?

A second meeting was called to which other photographers were invited. Fifteen people heard the theme idea and grabbed it up. It needed only the suggestion of Dorothea Lang and Wayne Miller, who responded to the invitation

San Francisco photographers create their own 'Family of Man'

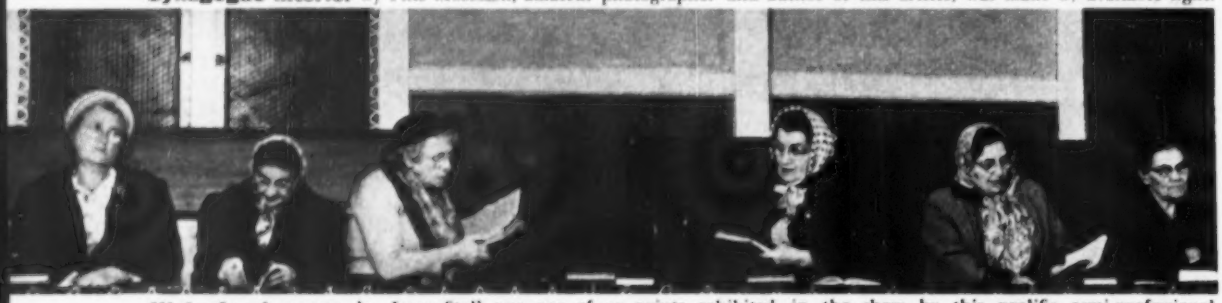
of the group, to help crystallize the project idea by suggesting its title—*San Francisco Weekend*. The theme would be as broad as its title suggested, the group decided, yet limited to a single weekend—from sundown Friday, August 5, through sundown Sunday, August 7. Every photographer in the Bay Area—commercial, professional, amateur—would be invited to take part. There would be no stipulations, no restrictions. Each photographer was to take the city as *he* saw it and send proof prints of his weekend experience to the committee by deadline time—August 15.

At the third (and first public) meeting the idea was thrown open to twenty photographers who were also quick to grasp its significance. Enthusiasm ran high and photographers were itching to get out and "shoot" San Francisco on the designated weekend. But the theme raised many problems. Some thought the weekend project too limiting. Others said it was too vague and broad in scope. Some doubted that professionals would participate because there was no reward in it and the group lacked prestige. Frankly, even though announcements and press notices invited all photogra-

Golden Gate sheep meadow by Miriam Young, amateur and mother of four, was exhibited as a 5-foot-long panel.

Montgomery Street scramble by Phil Palmer was blown up for exhibition to mural-size print 18 inches by 6 feet.

Synagogue interior by Phiz Mozesson, amateur photographer and author of this article, was made by available light.



Waterfront scene by Jerry Stoll was one of 15 prints exhibited in the show by this prolific semi-professional.

phers to take part in the project, the executive committee itself did not know what to anticipate.

There were philosophical problems, too. Not only did Bay Area Photographers go against the stream in its collective approach to the craft, but it also broke with other tested and established theories. The initiating group was less concerned with (*Continued on page* 122)

Charles Wong, professional, shot this one outside San Francisco's Civic Center.

Old Barbary Coast spot caught by existing light by Paul Massel, who had 12 prints in show.

Pictorialist Wes Pease, of Oakland Camera Club, made this one.

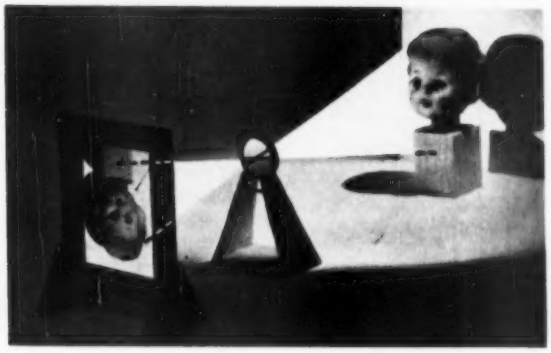
← **Jerry Stoll** worked all night, shot this bus-depot scene at 1:15 A.M.

YOUR CAMERA'S PARTS AND WHAT THEY DO

By JOSEPH FOLDES

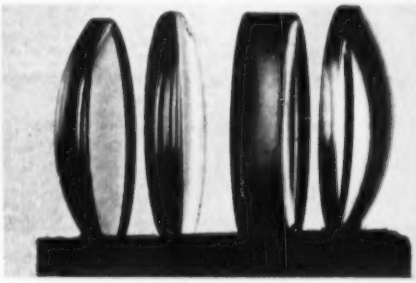
THE camera has undergone a dramatic evolution since the prephotographic days of the *camera obscura*, a darkened room with a lens which projected an image of the outside world onto one wall. Since then it has drastically shrunk in size, increased in complexity, and expanded in usefulness. In fact, for the beginner, a modern adjustable camera often seems a bewildering gadget. Actually, however, all cameras—no matter how intricate their refinements—are basically simple. They include a lightproof body, a device to hold the film, a lens to focus a sharp image on the film, a shutter to control the duration of the exposure, some type of viewfinding device, and various adjustments and controls. On the following seven pages, Joseph Foldes gives a clear, concise course in camera anatomy, including a graphic demonstration of just what each control accomplishes. His unique photodiagrams show at a glance the purpose of the lens, aperture adjustment, shutter, focusing mechanism, rangefinder, and film advance on all the basic types of cameras. They also give a graphic demonstration of focal length, depth of field, the relationship of lens opening to image brightness, and other important, although often confusing, photographic matters. If you're a beginner you should find this article very helpful as a jumping-off point for your further explorations into the mysteries of photography. If you're already a well-informed photographer you may find that the text and pictures make a useful refresher course. And even if you're an expert we hope you'll enjoy Foldes' interesting visual presentation of what so often is a dull, confusing subject.—

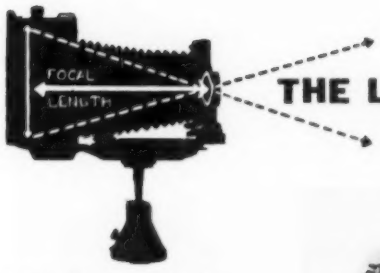
THE LENS AND ITS ELEMENTS



The lens is the "eye" of your camera, admitting light rays reflected from objects in front of the camera and focusing them to form a sharp image at the film plane in the camera's back. This image, as shown in the photodiagram at left, is both upside down and reversed left-to-right. Actually, a photograph can be made without a lens. A tiny pinhole pierced through the front of a lightproof box will produce a picture. However, a lens gives a much sharper image and admits more light so that exposures can be shorter.

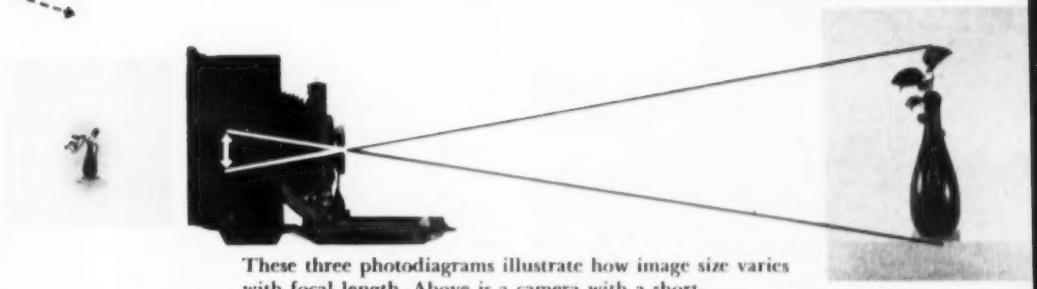
The simplest lenses, the kind used in most box cameras, consist of a single optical glass *element*. The faster, more expensive lenses may include two, three, four, or even more elements as shown in exploded view of a complex lens, right.



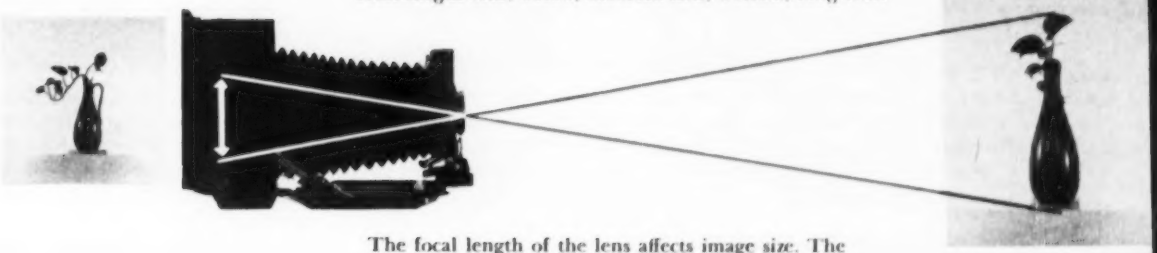


THE LENS: FOCAL LENGTH

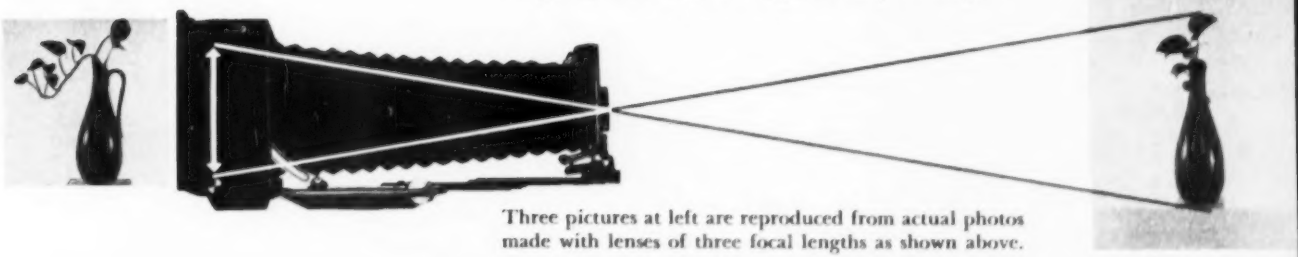
A key characteristic of any lens is its focal length: the distance from the lens to the film plane when the lens is focused at infinity.



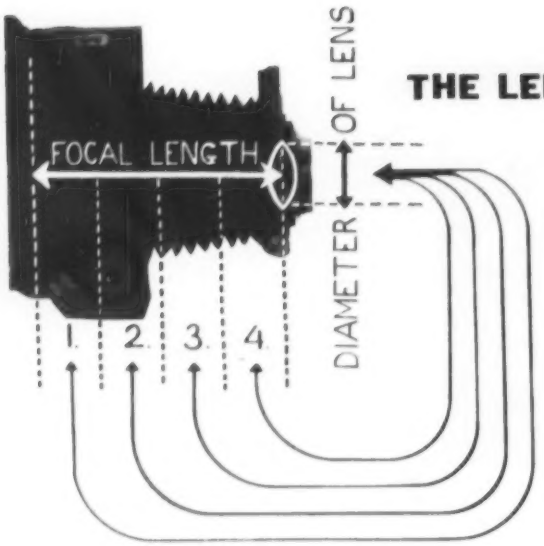
These three photodiagrams illustrate how image size varies with focal length. Above is a camera with a short-focal-length lens; below, medium lens; bottom, long lens.



The focal length of the lens affects image size. The longer the focal length the larger the subject's image.

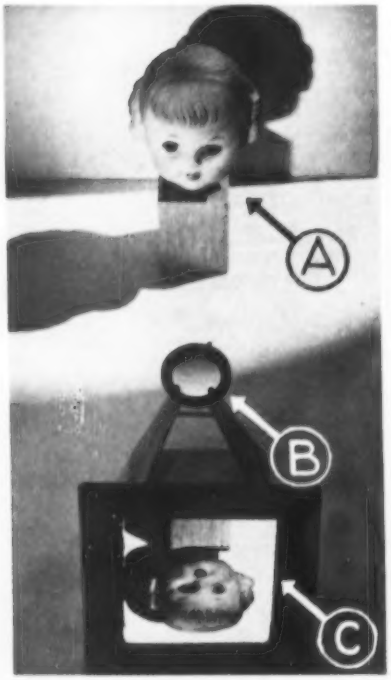


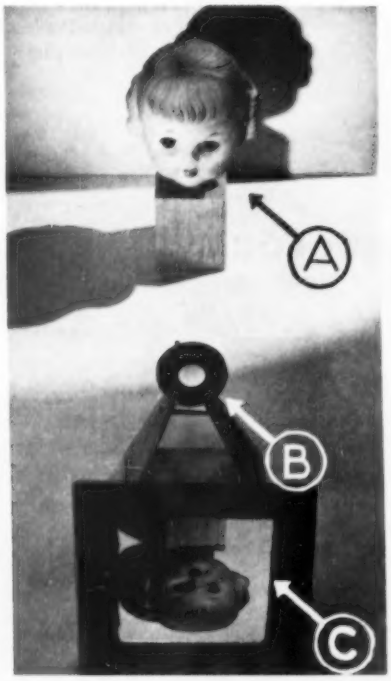
Three pictures at left are reproduced from actual photos made with lenses of three focal lengths as shown above.

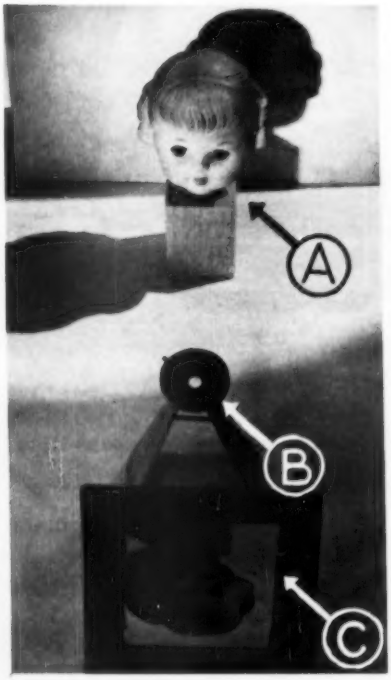


THE LENS: SPEED

The speed of a lens (its ability to transmit light) is determined in part by the size of the lens. The larger the lens opening, the more light is admitted. However, focal length is important, too, because the longer the focal length the farther the light must travel to reach the film and the weaker and more dispersed it will be when it reaches there. To determine the speed of a lens, divide the focal length by the diameter of the lens. The diagram at left gives an example: here the focal length is four times the diameter, and the lens has a speed of *f*/4.





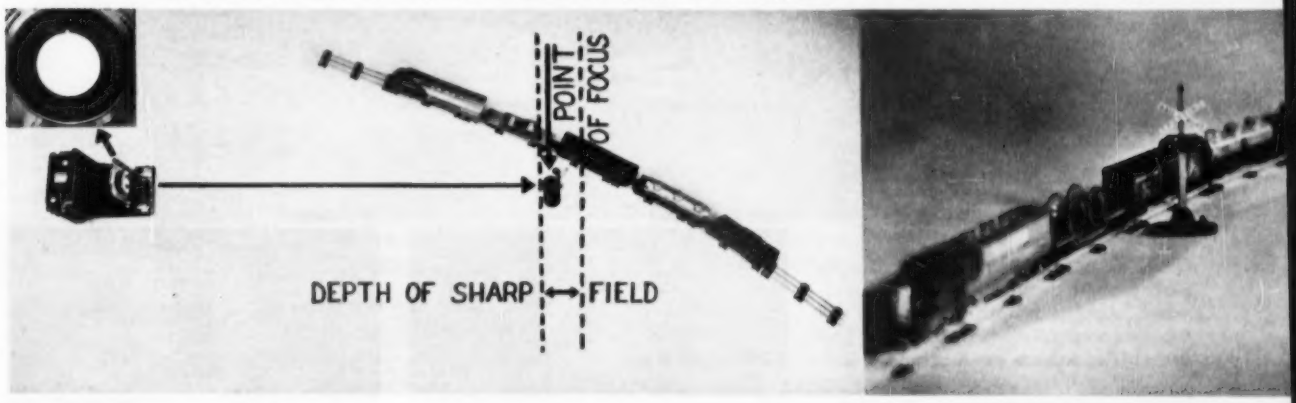


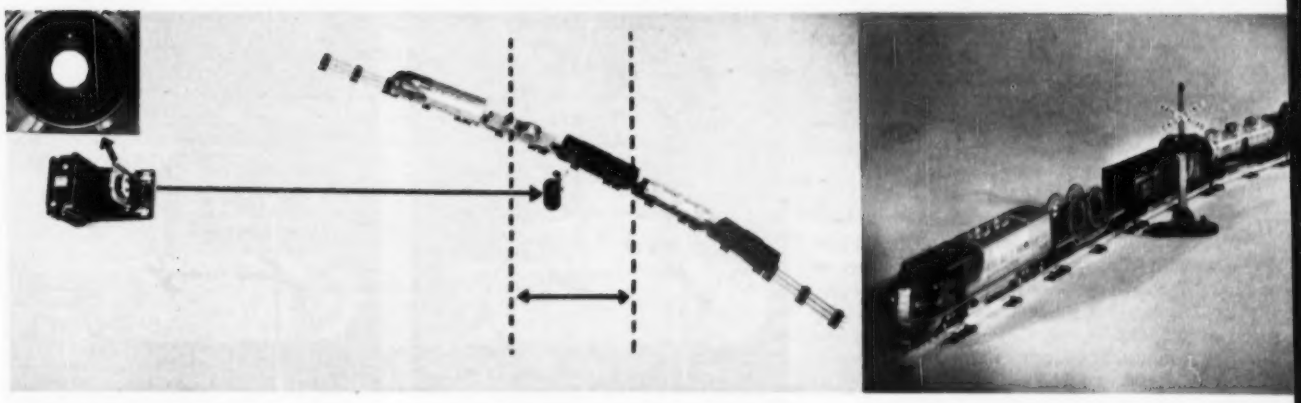
Lenses of adjustable cameras usually are equipped with a continuously adjustable diaphragm which controls the size of the lens opening and the amount of light admitted. The three pictures above, all of the same subject with identical lighting, demonstrate what happens to the brightness of the image as the lens is "stopped down." Notice how the groundglass image grows progressively darker as lens opening is decreased from wide open, far left, to mid-point, left, to minimum size, above.

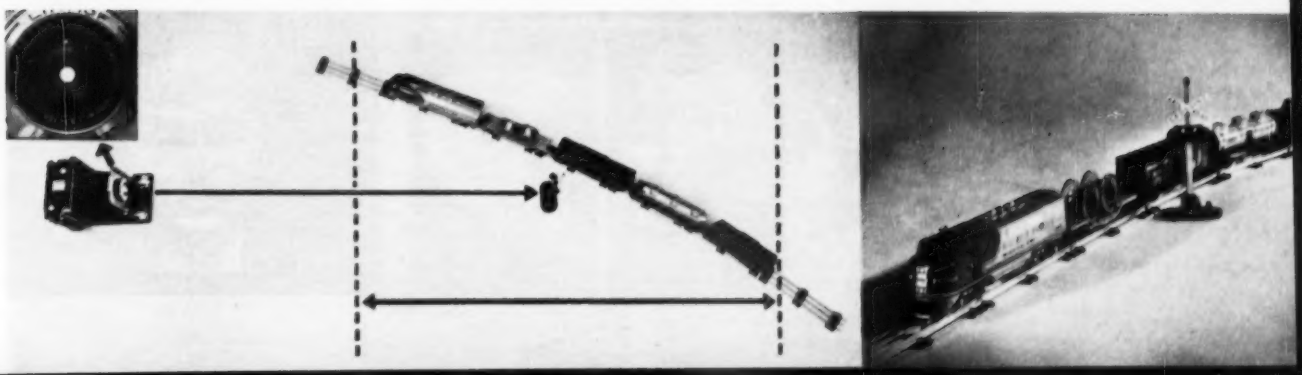
THE LENS: DEPTH OF FIELD

The lens opening also determines the depth of field—the area within which all objects are sharply focused. This zone usually extends one third in front and two thirds behind the plane focused upon. Any objects closer to the camera than the near limits will be out of focus; objects farther away than the far limits also will be unsharp. Of course, at the edges of depth of field the decrease in sharpness is gradual, not abrupt. The larger the lens opening the smaller the depth of field. "Stopping down" the lens to a smaller opening increases the depth of field.

The three photodiagrams below graphically demonstrate how depth of field is controlled by the size of the lens opening. Notice how more and more of the toy train is in sharp focus as the lens is progressively stopped down. Lens was focused at same point.







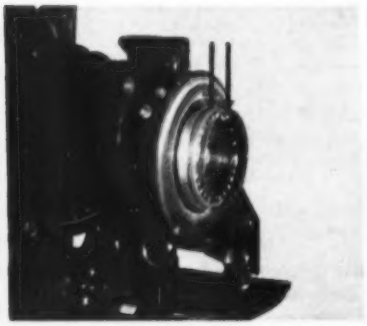
FOCUSING CONTROLS

All but the simplest box-type cameras have a focusing mechanism which adjusts the lens-to-film distance until the subject's image is sharp. In some camera types, such as the press and twin-lens reflex, the entire front of the camera moves as the focusing mechanism is adjusted. In the case of folding cameras with helical-mounted lenses and supplementary telephoto lenses for 35-mm cameras, only the lens itself or its front element actually moves. Examples of each are shown below.

FOCUSING MECHANISMS

PRESS-TYPE CAMERA

TWIN-LENS REFLEX



HELICAL-MOUNTED LENS

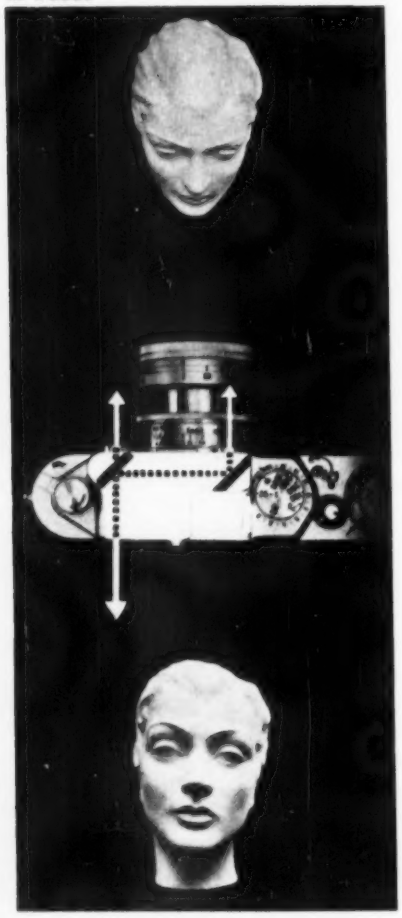
SUPPLEMENTARY LENS

RANGEFINDER FOCUSING

A quick, accurate method of focusing is with the aid of an optical rangefinder, which often is coupled directly to the focusing mechanism of the camera. The rangefinder utilizes small prisms or mirrors. The subject is "seen" simultaneously by two windows set apart in the front of the camera. If the subject is not properly focused, two out-of-register images (split horizontally or superimposed) appear in the rangefinder window at the back of the camera. The photodiagram at right shows the path of light through a rangefinder when the camera is not focused on the subject. Depending on the type of rangefinder the image may either be split into two horizontal images or two superimposed images. When the subject is in focus the result is a single image, as shown in the photodiagram and small picture at far right. (Note: sometimes the rangefinder and viewfinder windows are combined, sometimes they are separate.)

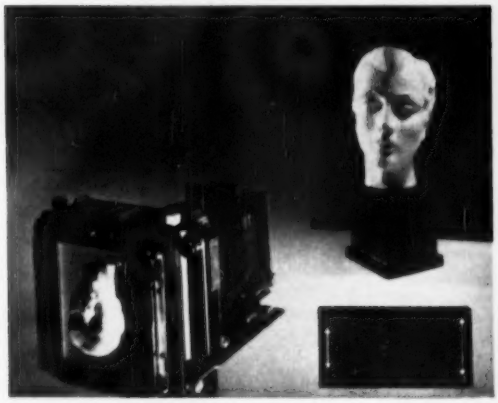
OUT OF FOCUS

IN FOCUS

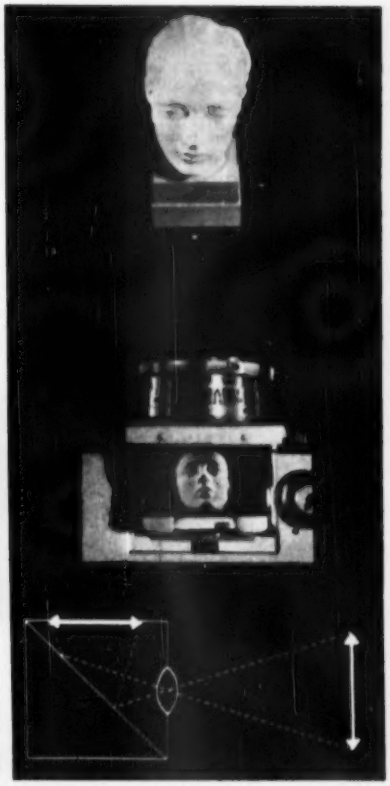


GROUNDGLASS FOCUSING

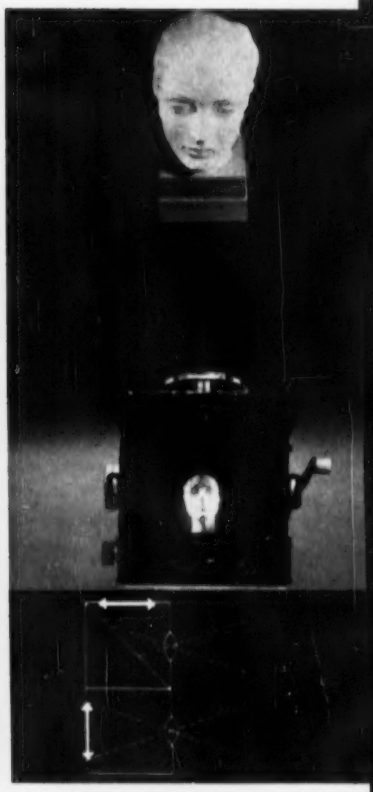
A groundglass back or viewfinder is another highly accurate way to focus. Here the focusing mechanism is adjusted until the image is sharp. Three basic groundglass systems are shown.



Press-type and view cameras have a groundglass back which shows image produced by lens.



Single-lens reflex has mirror which throws lens image onto viewing screen.



Twin-lens reflex has a top viewing lens coupled to bottom taking lens.

FOCUSING SCALE

Inexpensive focusing cameras frequently are equipped with a focusing scale. The subject distance must either be measured or judged, then the scale set to the desired distance. Good results can be achieved with this method, but of course focusing with a rangefinder or groundglass is faster, more accurate. Use of small lens openings, with relatively greater depth of field, will give you an added safety factor when focusing.

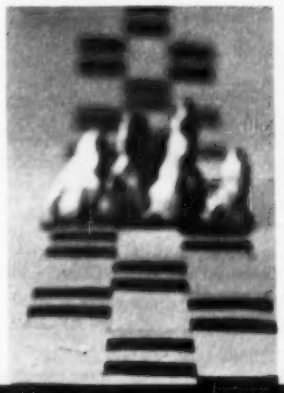
FOCUSING BY MEASUREMENT

FOCUSING BY GUESS

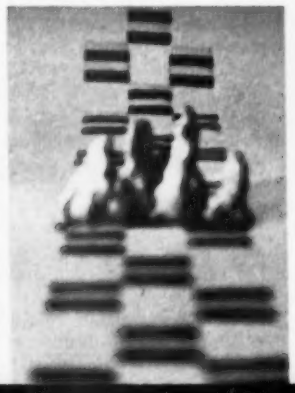
FOCUSING FAULTS

Focusing must be done precisely if you want sharp, clear pictures. It is especially critical when the subject is at a close distance and when the lens opening is wide. Practice operating the focusing control of your camera until you can work it quickly and accurately. Results of proper and improper focusing are illustrated in the pictures at right.

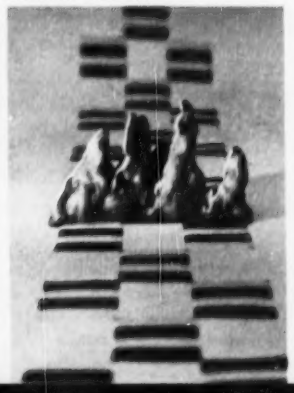
FOCUS TOO CLOSE



FOCUS TOO FAR



PROPER FOCUS

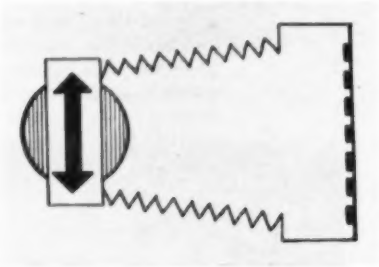


THE SHUTTER

Another basic camera part is the shutter, the device which opens and closes for a predetermined length of time to permit light to strike the film and make the exposure. Simple cameras have shutters which are preset to give an exposure of about 1/30 second. Adjustable cameras have a shutter-speed control which lets you choose from a range of speeds (from a full second up to 1/1000 second in some cases). Some shutters must be cocked before each exposure, some are self-setting, and still others are cocked automatically whenever the film is advanced.

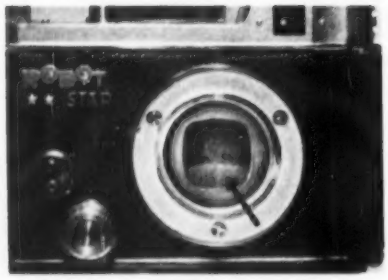
BETWEEN THE LENS

In many cameras the shutter is located between the lens elements. The picture at right shows a typical example. The single arrow points to the shutter blades (exposed by removing front lens element.) The double arrow points to the shutter controls. Diagram at far right shows location of shutter and lens elements.



BEHIND THE LENS

Some cameras have a shutter located behind the lens elements. A typical example is shown above. White arrow indicates shutter, black arrow the control.



Here is the same camera with the lens removed to reveal the closed shutter itself. In this case the shutter is of the three-bladed guillotine type.

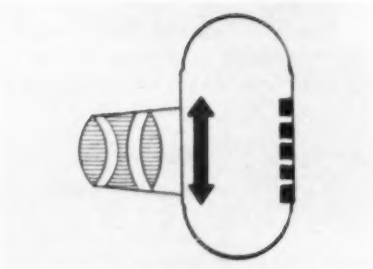
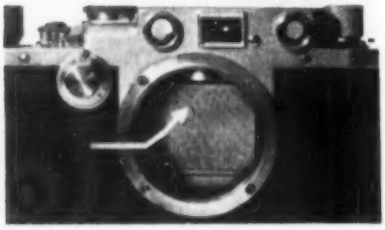


Diagram shows relationship of the lens, shutter (indicated by black arrow), and film. In behind-lens design, the camera can be fitted with interchangeable lenses.

FOCAL PLANE

Some cameras are equipped with a focal-plane shutter. In the model above, the single arrow indicates the shutter position, double arrow the speed controls.



Here is the shutter itself revealed by removing the lens. All focal-plane shutters are fabric or metal curtains with a slit or slits which move across the film.

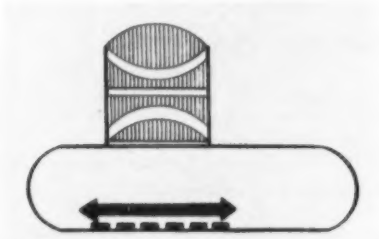
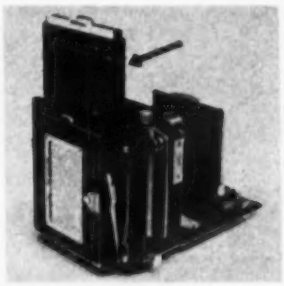


Diagram above shows location of focal-plane shutter close to film. This type of shutter is found most commonly on the more expensive 35-mm and press cameras.

FILM TRANSPORT

The film transport, a device to move the film into position for each new exposure, is an important mechanical part of any camera from the simplest to the most complex. The operation of moving the film into place for the next shot is one which should be practiced until it is a reflex action. With automatic and semi-automatic devices, this is relatively easy. With manual film transports somewhat more skill is required. Typical examples are shown.

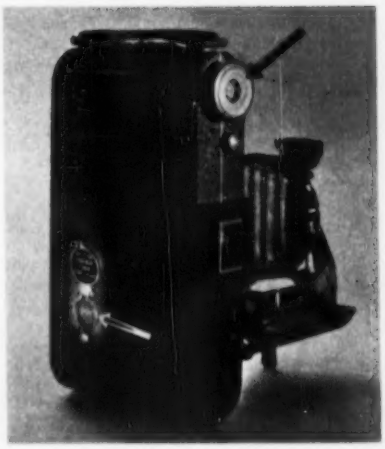


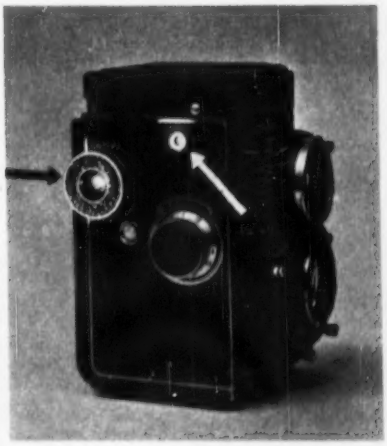
SHEETS AND PACKS

Above, press and view cameras don't use a film transport. Instead, the individual sheets of film are loaded two to a holder and inserted in the camera back, or a film pack containing 12 sheets is employed instead.

MANUAL →

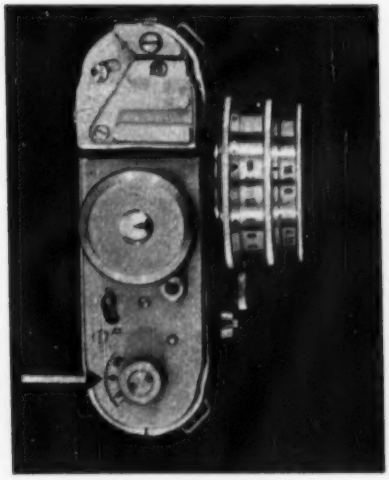
Right, many roll-film cameras have a manual winding knob which advances the film, and a red window in the camera back to show when each frame is lined up. This type may or may not include double-exposure prevention.





SEMI-AUTOMATIC

Semi-automatic film transport, found on some of the more expensive roll-film makes, has a winding knob (indicated by black arrow) to move the film, but its advance is stopped automatically when a new frame is in position. A counter (indicated by white arrow) keeps count of shots.

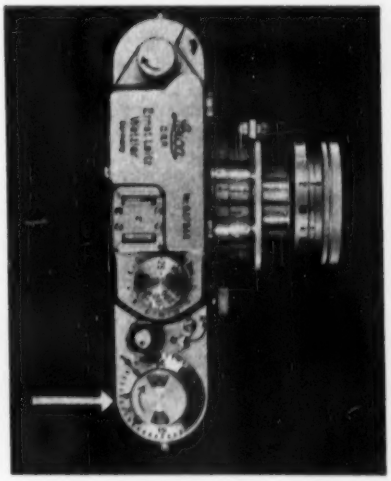


AUTOMATIC

Some cameras have an "automatic" film-transport mechanism: the film advance is coupled to the shutter-cocking device and the shutter is wound for the next shot at the same time the film is moved into position. Arrow in illustration at right points to counter of exposed film frames.

← **MOTOR DRIVEN**

The most advanced type of automatic film transport is driven by a motor which advances the film and cocks the shutter after each exposure is made. Single frames can be exposed or a series of rapid-sequence shots can be made automatically —a help in sports and action work.



WINTER NIGHT

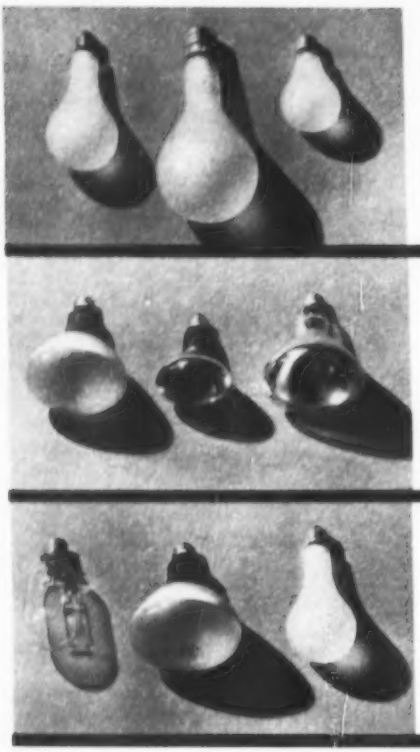
Kosti Ruohomaa deliberately underexposes to emphasize the bleak mood of a winter dusk

Few photographers in their right minds go out looking for poorly lighted scenes to shoot; and still fewer would actually reject using all of the already abysmal amount of prevailing light to further darken the resulting image. However, Kosti Ruohomaa, a photographer whose early background in art has undoubtedly influenced him in the use of his camera as a medium of self-expression, employs just such an offbeat approach. When recording winter scenes in his home state of Maine, he frequently uses deliberate underexposure as a device to enhance the wintry mood of his pictures.

For example, one can almost feel the chill wind whip-

(*Continued on page* 122)

By NORMAN ROTHSCHILD



Your guide to AMATEUR LIGHTING EQUIPMENT

Nine common lamps that meet most amateur lighting requirements are shown above. Left to right, top picture: 500-watt No. 2 flood, 1,000-watt No. 4 flood, 250-watt No. 1 flood. Center picture: reflector flood, small 300-watt reflector spot, 500-watt medium-beam reflector spot. Bottom picture (all 3200 K lamps, balanced for professional sheet films): 500-watt T-20 bulb, R-32 reflector flood, 500-watt flood.

Don't be baffled by the variety of lamps and lighting devices. Here's how to choose the right kind of light for the job

Your indoor pictures depend largely on artificial light, and this usually means photofloods, spotlights, and the accessories that go with them. You can't simply go into a camera store and pick out a few bulbs that look like floods, and a couple of stands and other gadgets that look as though they would do the job, and expect to be prepared for the particular kind of picture you want to take. It's a good idea to build up a small "arsenal" of lights and accessories, based on the kind of indoor pictures you take most often, and then know what to add for special situations you may encounter.

This story gives you, first, some general information about lighting equipment; second, detailed discussion of the lamps, reflectors, holders, and other gadgets you may find useful; and third, tables of lamp performance and color-balance recommendations.

If you will be making only an occasional indoor snapshot, you can get along with a couple of inexpensive clamp-on holders, fitted with mushroom-shaped reflector lamps. But if you are at all serious about making pictures with professional lighting effects, you will need a minimum of three stands, complete with reflectors and attachments—one main light, one to control shadow depth, and one for background or accent light.

For occasional week-end sessions, ordinary sockets and wiring will do well enough. However, if you expect to have long or frequent sessions, try to purchase units with heavy-duty wiring. Wooden handles on reflectors are helpful, too, to keep you from burning your fingers when you adjust them. Rubber tips on light stands keep them from slipping on a smooth floor and prevent marring the surface.

When you use many lights in a setup, it is important to remember the total wattage your line will bear. Most homes have 15-ampere fuses in each circuit, which means that at 110 volts you can draw a little more than 1500 watts at a time from each one. A chart at the end of this article shows how much wattage each lamp draws. You will have to determine what your building's wiring scheme is; it may permit you to use more than 1500 watts if you distribute the load on two or more circuits. But remember that today's fast films make it possible for you to work with a lower total wattage; take advantage of this whenever you can, for safety, convenience, and economy. *Don't* put a fuse of higher amperage in a circuit which is not intended for it. This is a fire hazard.

Choice of lamps

Photofloods. In this type of lamp, long life is sacrificed for high light output per watt. Floodlamps produce about twice as much illumination per watt as other photographic lamps. This is especially advantageous when you are working away

from home (because you can carry fewer lamps) and when you want a multiple-light setup on ordinary household fusing.

Photofloods vary in efficiency during their rated life. (This is about three hours for a No. 1, six hours for a No. 2, and ten hours for a No. 4.) After about half their rated life, their light output drops rapidly. For best results, a close check should be kept on the burning time of each lamp. A tag attached to each cord can be used to keep this record.

The color balance of photofloods veers sharply toward red after the lamps have been used for half their life. When shooting color film, discard any lamps that have been burned this long. (Keep them for black-and-white, or for parts of the scene where color fidelity is not critical.)

Where movies are concerned, photofloods, having a short life, should be replaced completely when you are shooting an important, irretrievable scene. If a lamp burns out in still photography, we can usually ask the model to wait while we replace it, but in movie shooting—of a wedding, for example—we can't usually do a retake, as Hollywood does.

Photofloods come in standard shapes which require accessory reflectors, and in the mushroom-shaped silvered bulb that serves as its own reflector.

As for color work, photofloods are balanced for use with Type A films, which are not manufactured in the U. S. at present. With other color films a filter is necessary. See the table at the end of this article.

Blue-glass photofloods are also available. They are not intended as a primary source of light, but rather to supplement daylight, to soften shadows. If blue bulbs are the only source of light with daylight films, the resulting picture will be decidedly reddish. Blue flood bulbs are available only in standard lamp shapes.

3200 K Professional Studio Lamps. These lamps are balanced for use with sheet color films such as Ektachrome Type B and Anscochrome Tungsten. They can also be used with other artificial-light color films by adaptation with filters; see the chart at the end of this article.

These lamps combine high efficiency with relatively long life. Light output does not fall off greatly near the end of their life, as it does with photofloods. Also, the color quality is more constant, so that they can be used (except in highly critical commercial work) right up to the end of their life.

They are available in three forms. One looks like the ordinary photoflood, another is in the form of a reflector flood, and the third is a projection-type lamp.

Lamp shape and type. Photographic lamps in the shape of ordinary household lamps must be used in reflectors; these are the stand- (*Continued on page* 128)

Tripod stand with large reflector is basic lighting tool for serious worker, adaptable to various uses.

Clamp-on holder is compact, versatile, can be fixed to furniture, doors, woodwork; will not scratch.

Small reflector narrows beam of an ordinary photoflood, acts as spotlight to accent or dramatize.

Boom stand, with counterweight for lamp, permits toplighting of subject without intrusion of stand.

Diffuser of cloth or spun glass reduces lighting contrast, softens both highlights and shadows.

Barn doors limit the field of flood beam, keep light off background, prevent its striking lens.

Bar-lights, designed for mobility in movie work, are also good for stills, give flat front lighting.

Reflector, of white cardboard or foil, lightens shadow areas. This one fits on a ball-socket joint.

The Kodak BULLETIN

Incredible New

New-type "dual-purpose" indoor-outdoor Kodacolor Film works either with daylight or clear flash WITHOUT FILTERS OR BLUE BULBS . . . yields properly balanced color prints with both. Impossible, of course, but Kodak found a way. We append also some handy dope about timers, darkroom guesswork-eliminators, safelights, handling beautiful Kodak Opal and Ektalure papers, and the unique compactness of the new Super-M flash.

Incredible color film

Everybody knows you can't balance the same roll of color film for both daylight and clear flash. Sure, it would be a great convenience—no filters to worry about—no blue bulbs—start a roll in daylight, finish it with standard clear flash, switch back and forth at will. But—

So Kodak did it anyway.

It's the new Kodacolor Film, one type only, for daylight *and* clear flash, and it's wonderful stuff. It has a finer grain

structure and higher acutance (less "image spread") than the old Kodacolor—so, with a good lens, it yields sharper color negatives which make sharper color prints. And you use it freely indoors and out with no conversion filters and no blue bulbs.

Maybe you've already guessed the secret. It's partly in the film, and partly in the *printing*. We build this film so it will embrace the full color range of a subject, either by daylight or flash. In printing, the negatives are identified by subject—indoor or outdoor. The color of the printing light is then adjusted accordingly—yielding a properly color-balanced print.

This amazing new Kodacolor Film is available in all the most popular roll-film sizes. See your dealer tomorrow and try out one of the astonishing developments in modern color photography. Prices (not including processing or prints): CU127, $1.10; 120 and 620, $1.25; 116 and 616, $1.75; 828, $1.00. Processing, any size roll, 90 cents via your Kodak dealer.

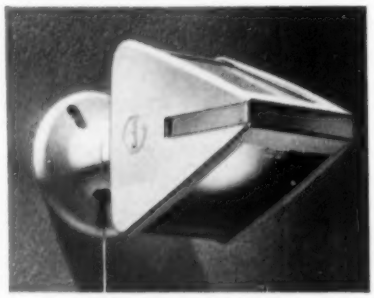
P. S.—There is one special case where you might use a blue bulb with the new Kodacolor. It would be for flash fill in a daylight shot. (For other types of shots, stick to either *daylight* or *clear flash—not a mixture of the two—nor a mixture of miscellaneous odd types and colors of light.)*

Lightroom

"Darkroom" is a word of historical interest only. It belongs back in the distant days when photographers worked their alchemy in pitch-black caverns. Nowadays the wise men go for a bright, softly safelit room—as light as you can get it without causing fog on film or paper. Mostly paper, for that matter, because the majority of photographers now develop their film with the bright lights on.*

All this doesn't mean that a good safelight isn't a darkroom necessity. It is. And it should be chosen with care. A safelight that doesn't put light where you want it, leaks light, or has a second-rate filter, is going to make good darkroom craftsmanship next to impossible.

Kodak safelights leak no white light; the filters are highly accurate Kodak Wratten Safelight Filters; and we make the lights in a number of styles to fit just about every darkroom, yours included. For a versatile light at a modest price, there's the Kodak 2-Way Safelamp. It



can be screwed into an ordinary light socket on ceiling or wall, swivels all the way around, holds a filter on both sides to give you light in both directions at once or in just one direction if you wish. $6.95, with safelight filter.

Then there's the Kodak Adjustable Safelight Lamp which is mounted on a double-swiveled shank and bracket that you can attach to a wall, shelf, or bench and swing or tip as you will. Comes with a 6-foot cord and 5½-inch circular Series 0A Filter. Price, $11.75.

If you have a large darkroom, you'll want to consider the Kodak Utility Safelight Lamp, Model C, which hangs from the ceiling on chains and gives you even, indirect illumination over the whole room. Holds a 10 x 12-inch filter (Series 0A is supplied) and costs $20.25. You can mount it on the wall with a special wall bracket which we sell for $3.50. Then you not only can use it as a safelight but also as a transparency illuminator. Ask your Kodak dealer about it.

**The Kodak Day-Load Tank is the handiest thing we know of for developing 35mm film—black-and-white and Ektachrome. Do the* whole *job with the lights on. $9.95. For black-and-white roll film, there's the Kodacraft Roll-Film Tank which has to be loaded in the dark but you do the rest in the light. $2.95 including two aprons for 620-120 and 127 films.*

Tempus fugit

It's hard to believe that anyone with a darkroom doesn't have a good timer. But, on the off chance that you don't, we thought we'd better remind you of the Kodak Timer. It has a tilting base and a hook to hang it up on the wall. It can be started or stopped with a handy lever in front, quickly reset to zero. The big hands and large numbers make it easy to read in the dimmest safelight. And it lets you measure time down to the second. For $8.75 you're set for years to come.

Sartorial sensibilities

Practical as well as proper is the Kodak Darkroom Apron. It's made of vinyl that resists chemicals. A cuff-like turn at the bottom keeps the drips and drops of chemicals off your shoes and pants. No stain, no bleach. And the cost of this convenient covering is just $2.75 for the medium size, $3.50 for the large. Stop in at your Kodak dealer's for a fitting.

Guesswork eliminators

Guesswork in your darkroom can be an

Color Film

expensive business if it wastes paper and film. Trying to eliminate guesswork by mental arithmetic can be pretty frustrating.

The solution? We suggest the company of a Kodak Dataguide, hanging in a friendly fashion from your darkroom wall or bound into your Kodak Photographic Notebook, if you wish. What are Dataguides? They are large, dial-

type computers that are easy to see, easy to read, and always good for a quick, accurate answer when you need it. Answers to what? That depends upon the Dataguide; let's look and see:

The *Kodak Enlarging Dataguide* calculates changes in exposure time for changes in magnification or aperture, gives exposure and paper grade computed from density measurement, includes a focusing negative, costs 75¢.

The *Kodak Dye Transfer Dataguide* calculates exposures according to density readings, relates density, lens aperture, and magnification. For color printing by the Kodak Dye Transfer Process. $1.

The Kodak Data Book, "Kodak Papers" is another handy darkroom reference. Its 64 pages cover the characteristics, use, and selection of Kodak contact and enlarging papers, plus hints for making finer prints. 50¢.

Zone-focusing Duaflex IV

We still think the Kodak Duaflex Camera, *f*/8, is just about the best family snapshot camera ever built. Handy to handle . . . lens fast enough for Kodacolor shots even when the light isn't perfect . . . color-corrected for sharper negatives . . . fast enough for all normal-range flash shots, and stops down enough for flash close-ups . . . double-exposure prevention . . . big brilliant viewfinder, with hood . . . rugged metal body and back, with tough molded side panels locked in . . . and twelve thrifty 2¼-square negatives to a roll of 620 film.

Now all the basic Duaflex virtues have been put into a new Duaflex IV—with extras. New, rapid "zone-focusing" scale, marked for Close-ups, Groups, and Scenes, in addition to the 3½-feet-to-infinity scale. Also a better click-stop lens arrangement, with a very legible plate marked both in *f*/stops—8, 11, 16—and in light conditions: Hazy Sun, Bright Sun, and Bright Sun—Snow or Sand. Also a pleasing new brown-and-tan color scheme. $24.50. Your wife have a birthday coming up soon? Or how about a Duaflex to keep your teen-

ager from borrowing your jealously guarded umpteen-dollar cameras?

Popular papers

Kodak Opal Paper, like the Rock of Gibraltar, has been around for a long time. Kodak Ektalure, same type as Opal but twice as fast, is younger. Studio photographers like them both because they are wonderful papers for portraits. Same with amateur photographers. Same with us.

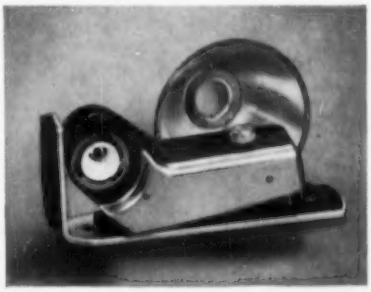
Kodak Opal Paper gets its popularity from its warm tone and long gradation scale, its moderate printing speed which leaves you plenty of time for leisurely dodging, its adaptability to toning, and the wide range of surfaces it comes in.

The "twice-as-fast" Kodak Ektalure has an edge with those in a hurry. The tone is a bit warmer, the shadow areas clean and open. It comes in five surfaces.

Each paper is made in only one printing grade, for normal-contrast negatives.* Both are available at your Kodak dealer's. If you haven't tried them you should.

**Some people ask us what they're supposed to do with negatives that aren't "normal contrast." We tell them that Kodak Selectol and Selectol Soft Developers, used together, give a broader printing range with both Opal and Ektalure. Use Selectol Soft for maximum softness, Selectol for maximum contrast. By partial development in Selectol Soft and finishing with Selectol, you can get intermediate contrasts. Try it.*

Super-compact M



We keep finding more attractive features in our new Kodalite Super-M (for "midget") Flasholder. For instance, "midget" is an understatement. This whole unit disassembles quickly—reflector, bracket, and battery case—and takes up no more space in a gadget bag than two or three packs of cigarettes!

And small as it is—this $9.95 B-C unit with its mirror-bright 3-inch reflector and a tiny M-2 bulb lets you use a flash guide number of 140 with Kodak Tri-X Film . . . 85 with Plus-X . . . 50 with Kodak Ektachrome Type F (using the No. 81 filter). That's a lot of power in a mighty snug package. You can also use No. 5 and 25 bulbs, no color-film filter needed, same guide numbers as for the M-2.

(Another handy thing—the Super-M has a spare tripod socket in the bracket. Useful when your camera is already attached to the bracket, and you want to affix both to your tripod. Also, the bracket is slotted so you can attach practically any camera, regardless of where *its* tripod socket is.)

▶ Telephoto shots taken without filters often lack contrast. A Kodak Wratten G Filter does the trick by penetrating distant haze. From $1.75 in Series IV.

Prices include Federal Tax where applicable and are subject to change without notice.

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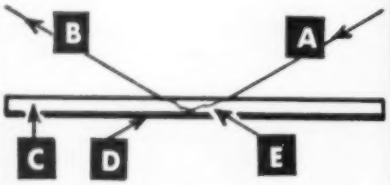
It's Done With Mirrors

(*Continued from page* 45)

in perfect symmetry and proportion. In submitting the transparency to POPULAR PHOTOGRAPHY for publication, McDougall suggested that such pictures have not been made before because of the extreme precision necessary in placing the pair of kaleidoscope mirrors in front of the camera lens. The quality and surfacing of the mirror are also important factors.

Below, in McDougall's own words, are the factors involved in producing a believable kaleidoscopic effect in a color photograph:

"Optically flat front-surface mirrors are needed so that the reflected images will not be distorted in passing through two thicknesses of glass to and from the silvered surface. Slight color in the glass itself might also act as a filter and change the color of the reflected images.



Ordinary mirror with rear silver surfacing (D) distorts incident light rays (A) as they pass through mirror glass (E) and again as reflections (B) emerge; the greater the glass thickness (C) the greater the final distortion.

Front-surface mirror produces undistorted reflections (B) as incident rays (A) strike silver surface (C) without penetrating the glass.

"The inner edges of the mirrors in 'V' position should match perfectly. The mirrors then have to be placed accurately along the optical axis of the lens. This placement can be determined on the groundglass of the camera by comparing the length of the reflected images with the length of the direct image. If the mirrors are out of position, the reflected images will be longer or shorter than the original image.

"The length of the mirrors must be longer than the focal length of the camera lens. If the mirror length is too short, the reflected images will not be sharply defined at the central point where the images meet. For example, if you were to photograph a full-length figure with mirrors that weren't long enough, you would find that either the reflected images would begin at the model's knees or else the foreground would show through the reflected figures as a hazy secondary image. In other words, it would be im-

Projectionists we have known:

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Also known as No-Spare Sam. Likes to live dangerously. Thinks spare lamps are for timid types. Result . . . Bernie's been blacking out for years! Don't be like Bernie. Buy *two* G-E projection lamps . . . one for use, one for insurance. G-E lamps give you brighter, more uniform light on the screen that means sharper pictures.

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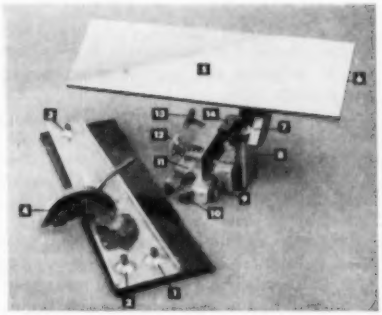
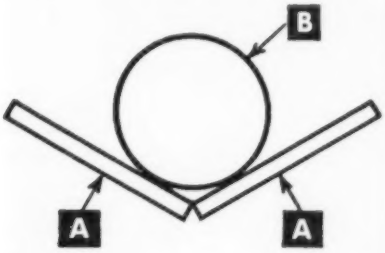


Construction details of kaleidoscopic mirror mount that fits in front of the camera lens: Right-hand first-surface mirror (5) is shown mounted on support with short edge (6) intended to face lens; mirrors measure 2½ x 8". Dismounted left-hand mirror, face down, is glued to heads of screws (1), (2), (3), in perfect alignment with support; mirrors' angles are adjusted by trunnions (7), (4)—the latter fitting into fixture (14)—set screw (13) fixes precise angle. Longitudinal mirror tilting is effected on pivot (9), locked by springed screw (12). Assembled unit is raised and lowered on block (8), shifted laterally on block (11); screw (10) secures unit to camera track.

possible to get a sharp cutoff between direct and reflected images.

"It is very important to check the brightness of the reflected images on the groundglass at the aperture you will use to take the picture. Reflected images that look perfect with the lens wide open will be headless when you stop down the lens, due to vignetting caused by the diaphragm of the lens. As the lens is stopped down, the mirror support must be raised so that the diaphragm circle can be seen just inside the "V" of the mirrors.



Mirrors (A) must be raised or lowered whenever lens aperture is changed so edges of diaphragm (B) appear to touch mirror surface.

"In a toy kaleidoscope the mirrors are set at a 30-degree angle. At this angle, you see a direct image plus 10 reflected images. As the angle between the mirrors increases, the number of reflected images decreases until you reach 180-degrees with a single reflected image.

"With my mirror supports, I am able to change the mirror angle at will, and by observing the reflections in the groundglass, can choose whichever pattern looks most effective. My mirror mounting was machined by a highly skilled model maker, but my results can be duplicated with a relatively simple

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Walz Filters are also available for most cameras with threaded lens mounts not listed	Colors Available: CLEARFLASH TYPE F SKYLIGHT YELLOW RED GREEN	Color Kit Contains: CLEARFLASH SKYLIGHT TYPE F Black & White Kit Contains: YELLOW RED GREEN	Sizes Available: +1 +2 +3	Kit Contains: +1 +2 +3	SCREW-IN FOR ALL FILTERS AND LENSES BAYONET FOR ROLLEI
ARGUS C-3, Elmar f:3.5	1.95	5.75	2.50	6.95	1.95
RETINAS f:2 & 2.8, Karomat	2.95	8.75	3.50	9.95	2.95
CONTAFLEX, Contessa Contina, Ikonta 35	2.95	8.75	3.50	9.95	2.95
SIGNET, Bantam R.F. Cine Ektar f:1.9 & 2.8	2.95	8.75	3.50	9.95	2.95
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IMPORTANT NOTICE

TWO NEW FILTERS FOR THE NEW COLOR FILMS:

WALZ COATED CLEARFLASH FILTER (B-7)

The Walz Coated Clearflash Filter (B-7) is a blue filter for exposing all daylight color films with clear flashbulbs. When using daylight Kodachrome, Ektachrome, Anscochrome, or other daylight color films, it is not necessary to use blue flashbulbs. Instead, use clear flashbulbs and the new Walz Clearflash Filter (B-7). The Walz Clearflash Filter alters the color temperature from 3800 degrees Kelvin to 6000 degrees Kelvin, thus furnishing the same results with clear flashbulbs as would be obtained with blue flashbulbs and no filter.

WALZ COATED TYPE F FILTER (#85-C)

The Walz Coated Type F Filter (#85-C) is a pink-orange filter for exposing the new Kodachrome Type F and Ektachrome Type F color films in daylight. This filter converts the quality of daylight to that of clear flashbulbs by absorbing the ultraviolet and blue light. Any indoor type color film balanced for flash illumination may be used in daylight with the Walz Type F Filter.

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fixed-angle mirror support if you provide for two important adjustments:

1. Provide a means to raise and lower the mirror support when mounted on the camera bed (the mirrors then can be adjusted to the diaphragm aperture).

2. Provide for slight mirror-tilt adjustment (so that the mirrors can be aligned with the optical axis of the lens)."

In making the kaleidoscopic color shot of Miss Benedict on page 44, McDougall mounted his special mirror support in front of the 4x5 Linhof Technika camera equipped with a 90-mm wide-angle lens, as illustrated on page 45. The Linhof's rising front and lateral shifts were extremely helpful in making the fine adjustments between the pair of mirrors and the camera lens.

Lighting consisted of three 1000-watt-second SR Strob speedlights. Two 45-degree backlights were used 12 feet from the model and 10½ feet high. A 45-degree front light, 9½ feet high and 18 feet from the subject, was also used.

Daylight Ektachrome sheet film was used, without a filter. The exposure: f/8 at 1/400 sec. The background consisted of black felt, and two rolls of black paper were stapled to the floor.—N.C.L.—

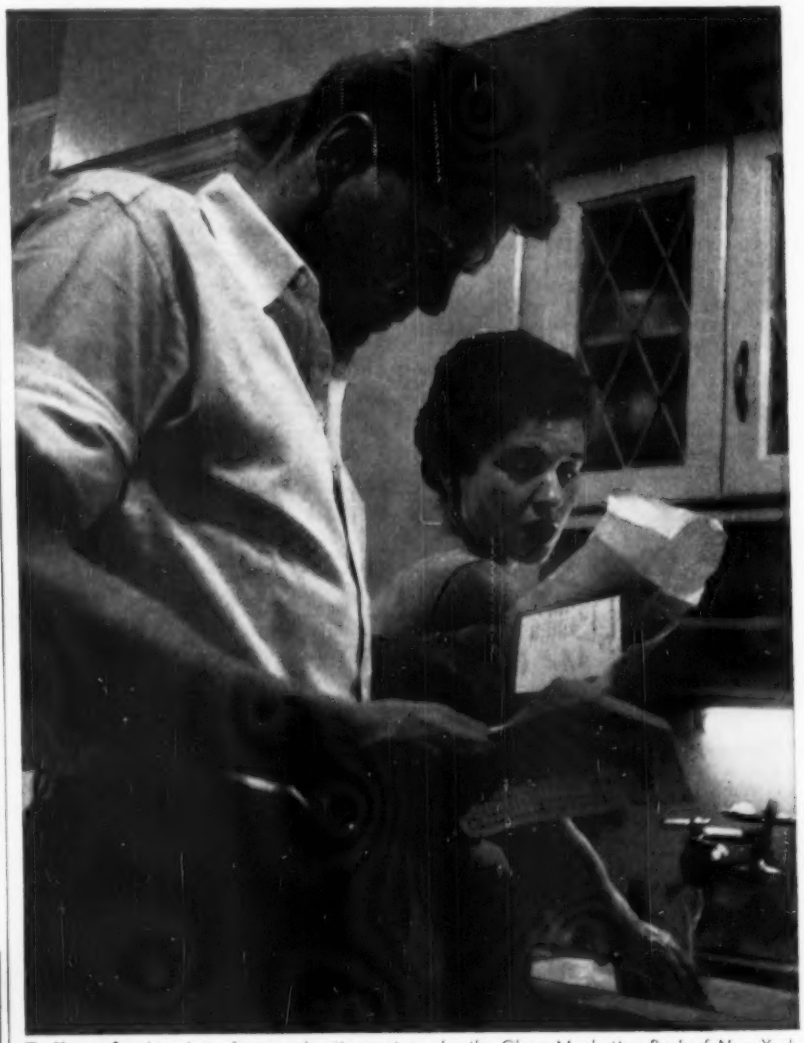
Hugh Bell

(Continued from page 54)

pictures they sober you up like a cup of black coffee. He shoots the life he knows best, and he shoots it intimately—boxers, jazz musicians in Harlem night spots, an unhappy girl in a Greenwich Village attic, and dancers half a step away from happiness.

Bell and his work are different but he doesn't think so. "I'm just like any other photographer," he says. Then, you question him further and find he's taking a course in jiu-jitsu because he might need it to carry through some of the future assignments he wants to do.

At 28 he is a still photographer and a motion-picture cameraman holding a union card in Local 644 of the IATSE. He crosses the line between still and mo-



Bell made this photo for an advertisement run by the Chase-Manhattan Bank of New York.

tion-picture work constantly and easily. Though he wants to specialize in producing still documentary stories, he has directed and shot full-page pictures for advertising campaigns. His technique and approach are versatile.

Bell can't say exactly how he got into photography.

"My father wanted me to be a doctor, lawyer, or a dentist," he said, "but I wanted a job where I could set my own pace, sixteen hours one day, three the next. I didn't like the confines of an eight-hour office, and I wanted to see as many different sides of life as possible."

While a student at New York University, Bell decided that photography would let him lead the life he wanted. "My first step," he said, "was toward motion pictures because there were so many areas within the field where I could get satisfaction—writing scripts, being a cameraman, editing film, or directing. But as soon as I got involved with movies I realized I had to learn journalism and still photography to keep from starving."

Bell received his degree, and went right into more courses in still photography.

"I took clases with Seymour Kattelson and Dan Weiner," he said. "Those classes were filled with probing into the statement of a picture, the right moment, composition, and the controlling of contrast. In fact, I still have a tendency to shoot tight—using every bit of my negative area for my picture—because I was criticized for wasting negative space during one of the class sessions."

In a short while, Bell had his market figured out. "If I concentrated on the small magazines, I could keep from starving while I assailed the walls of the Big publications," said Bell. And while shooting these stills he took assignments as an assistant cameraman on documentary movies, hoping to gain enough motion-picture experience to get a union card.

"You say I'm aggressive," he said. "You should have seen me when I first started in this business. I was shy, timid. But then I started studying the technique of a photographer I knew who was making $1200 a month. He had plenty of drive. The drive made him his money. I decided if I had to drive myself in this business, I'd drive myself."

Bell has plenty of drive. He uses it behind the camera, and in the offices of magazine editors. Although he likes shooting documentary stories under available-light conditions, he will take on any assignments involving any type of camera or lighting setup.

"Some photographers may sneer at my mixing what I feel are superficial pictures with serious photography," he said, "but I find it necessary in order to keep my economy up and work toward the road I want to be on."

"What road is that?" we asked.

"My greatest pleasure is the picture story," he began. "Photography, for me, is at its best when the picture story is making an important statement about life —especially when the pictures inspire and give some fresh insight into the complexities of living.

"The picture story," he continued, "is the best challenge. You can happen to

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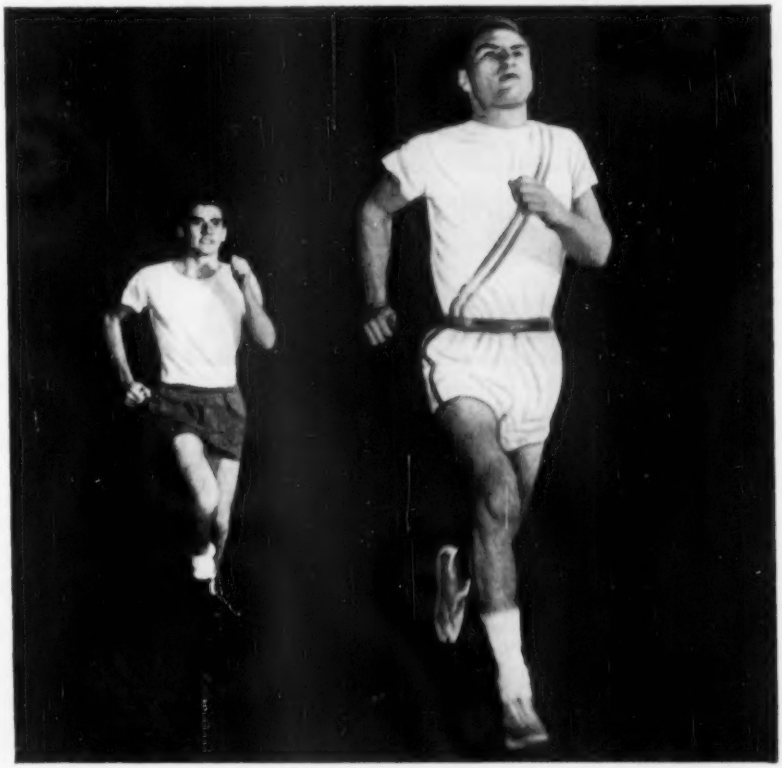

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We asked if he would rather work in still photography than motion pictures.

"I can do both," he replied. "A still story is really a motion pictured boiled down to the best single frame from each climactic scene. With the still story you are the cameraman, director, scrip writer, all in one. In motion-picture work it is almost impossible to be all these people at once." He hesitated a moment then slowly said, "Yes, I'd say I prefer still photography over motion-picture work."

On first examining Bell's shooting technique, one is impressed almost to the point of alarm at the way he disregards the polite standards of photography, such as recommended ASA ratings, and the idea of "full gradation of tones" in a print. In his black-and-white work he uses Tri-X for all available-light situations and dynamites it through Microphen developer after he's rated it at about ASA 800. "Film is film," he says, "and as long as you get a picture that means something it

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8. (a) Book: Complete reference book for amateur and beginner, "The Bolsey Guide," 128 pp., 70 illus., charts, tables, $1.95. (b) Circular: Bolsey Precision Cameras, features new Jubilee Threesome, prices. BOLSEY CORPORATION OF AMERICA.

11. (a) Brochure: "Bino-Fotography." (b) Booklet: "How to Select Binoculars." D.P. BUSHNELL COMPANY.

18. (a) Brochure: List and prices of 400 items for Exakta cameras. (c) Brochure: Automatic Exakta VX; New booklet. EXAKTA CAMERA COMPANY.

23. (a) Booklet: For Prize Winning Pictures—Graflex, Specifications, etc. 32 pp., illus. GRAFLEX.

26. (a) Booklet: The Royal Robot; (b) Booklet: Robot Underwater Camera; (c) Booklet: Robot Accessories. INTERCONTINENTAL MARKETING.

31. (c) Booklet: Hints on camera care and picture taking; also describes complete line of Konica cameras; accessories. 16 pp., illus. KONICA CAMERA CO.

34. (a) Booklet: Minolta "A"; Minolta 35, Model II and Rokkor lenses. (b) Booklet: Minolta Autocord and Minoltacord. MINOLTA CAMERA COMPANY.

38. (a) Catalog: Discusses each Polaroid Land Camera, accessories, gives hints and ideas for using 60-second pictures, illus. POLAROID CORPORATION.

39. (a) Brochure: Information on book titled "35mm Photography With A Praktiflex." (b) Brochure: New booklet on the Prakticon-Praktiflex FX. PRAKTICON COMPANY.

41. (a) Brochure: "Realist 35"; detailed facts on Model A & B, accessories. (b) Brochure: Commercial Applications of the Stereo-Realist, 4 pp., illus., plus 12 pp. of detailed information relating to modern selling. (c) Brochure: Realist 45, description, illus. REALIST, INC.

45. (a) Booklet: Omega 120; data, description. SIMMON BROTHERS.

52. (a) Booklet: "The Voigtlander Line"; complete details, description, illus. (b) Booklet: Complete detailed information of Hasselblad Camera, accessories, 26 pp., illus. (c) Hasselblad Super Wide Camera, details, description of camera, accessories; 32 pp., illus. (d) Folder "Hasselblad 1000F", illus. descriptive pamphlet of Hasselblad and accessories. (e) Folder: Illustrated and descriptive folder on Hasselblad Super Wide. WILLOUGHBY'S WHOLESALE.

53. (a) Brochure: "Edixa"; describes 35mm Edixa cameras, accessories, lists prices. WIRGIN BROS.

CAMERAS, MOTION PICTURE

7. (a) Brochure: The Auricon Cine-Voice; 16mm camera for professionals. (b) Brochure: Same as above, except for home movie makers. (c) Booklet: How to use your Cine-Voice, 16mm sound-on-film Recording Camera. (d) Catalog: 40 pp., illus., Auricon Cameras. BERNDT-BACH, INC.

12. (a) Brochure: "The Eumig 88"; description, details, lists accessories for this 8mm movie camera. CAMERA SPECIALTY.

26. (d) Brochure: Bauer 88 motion Picture Cameras; Descriptions and accessories; also details on Bauer 88B camera with built-in exposure meter. Illus. INTERCONTINENTAL MARKETING CORP.

30. (a) Booklet: 8mm full line covering all 8mm movie cameras and projectors. (b) Circular: 16mm full line covering all 16mm movie cameras and projectors. (c) Circular: Christmas mailing folder describing the new Christmas packages available. (d) Book: Keystone Movie Scene Record Book; 15¢. KEYSTONE CAMERA COMPANY.

43. (a) Booklet: Cameras by Revere. REVERE CAMERA COMPANY.

63. (a) Catalog: Lists Wollensak Motion Picture Cameras, Projectors, Stereo Cameras and accessories, prices, descriptions 12 pp., illus. WOLLENSAK OPTICAL.

MOTION PICTURE ACCESSORIES

29. (a) Booklet: "Home Movies the New Craig Table Top Way," 20 pp., illus., including tips on tricks, etc., movie editing. (d) Booklet: "Editing for Better Movies" by Leo Heffernan, 50¢. KALART COMPANY, INC.

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(*Continued on page 119*)

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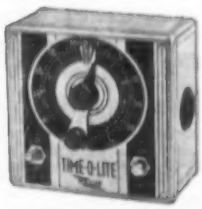

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doesn't matter how you've used it or what kind of grain you end up with."

On his black-and-white advertising assignments he softens his ideas somewhat. "You have to shoot for your market, often," he said. On advertising assignments he uses 35-mm Panatomic-X film. By exposing and developing with care he feels he can get detail equivalent to that of 2¼x2¼ or 4x5 film.

"I use Varigam printing paper most of the time," he said. "For very thin negatives (which happen when you're forced to underexpose under poor lighting conditions) I switch to Kodabromide No. 5."

Although Bell considers himself a newcomer to color photography, he is good at it. Again, as in black-and-white work, he will try to get a picture no matter what the conditions or what the color balance of the film in his camera might be. This urge to "get the picture" is very deceptive. He knows his films, but refuses to accept the limitations given by manufacturers. He constantly experiments. His results are off-beat pictures. One reason why they are "off-beat" is because he often uses a film in a situation where the lighting is of the wrong temperature. The second is because he underexposes and orders his laboratory to force the color film in development. He sacrifices color fidelity, but gains an original quality.

When you try to get him to say something concretely about his color work, you find that in his mind both areas—black-and-white and color—overlap.

"The natural-light photographer," said Bell, will try to get a picture which will bring a viewer right into it, keep him from realizing that a photographer or camera was present. I try to keep myself obscure by using a long-focal-length lens and as fast a shutter speed as possible to catch the 'movement.'"

In shooting color, Bell looks for colorful subjects—brilliant uniforms in a high-school cross-country race, autumn, the last rays of the sun falling on a girl in a red dress. His move toward color is almost instinctive.

"I'll tell you one thing I feel definitely about in color photography," he said, "and that is that I prefer flat lighting for color. The best color I've gotten so far was shot on a rainy day."

He likes the 85-mm lens best of all on his Leica camera. In his opinion the focal length of this lens helps eliminate the extraneous, less-colorful detail. It does this in two ways, first, by throwing the background out of focus in some situations, and otherwise by narrowing the field of view and cutting out non-essential edge areas.

Like most other photographers he has an "ideal assignment" in mind.

"I'd like to get a fellowship," Bell said crisply. "If I got one I would like to do a sociological picture essay on race in our society. I'd like to show what race consciousness means through pictures. I'd like to make statements on what it does to our psychological life."

Hugh Bell talks in an inspired manner when he discusses his "ideal project," yet you have the feeling that he has both feet on the ground and that it is more than a project in the realm of dreams.—

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Swiss-Eye View

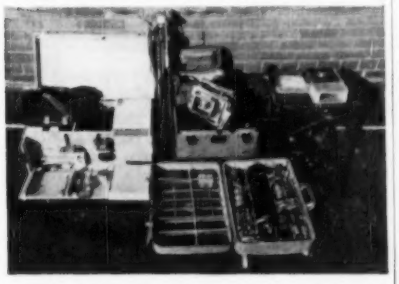
(Continued from page 49)

celestial telescope. What looked like a TV antenna was the precision-built, micromatically adjustable mounting for the tele-camera.

The Swiss editor-photographer, who had traveled and taken pictures in 17 countries before coming here, ended his American tour with a stay at the Hotel New Yorker, where the obliging management gave him access to a rooftop ideal for the panoramas and telephoto shots he wanted to make of the city skyline. But Schulthess didn't limit his viewpoint to the skyscraper top, attractive as that eyrie was. He roamed the whole city and its environs looking for fresh perspectives, new ways of seeing what so many had seen before him. Of the three Schulthess pictures we reproduce here, one was made from New Jersey, one with the camera aimed skyward from near ground level in Rockefeller Center, and one almost a "grab shot" made in Times Square at night.

Here is an inventory of the cameras Schulthess carried and used on his American trip:

Home-made tele-camera
Home-made 180° wide-angle camera
4x5 view camera
Rolleiflex
Hasselblad
2 Leicas, with reflex housing and seven lenses: 180-mm Sonnar f/2.8, 50-mm Summarit f/1.5, 85-mm Summarex f/1.5, 400-mm Telyt f/5, two 135-mm Hektor f/4.5s (one to fit the reflex housing), and a 35-mm wide-angle f/3.5.



Packed for travel: each piece of Schulthess' equipment has a niche of its own in specially built cases. Above, left, chest holding rear section of tele-camera; center, 4x5 view camera in case; right, 180° camera on tripod; foreground, small suitcase fitted to accommodate two Leicas, seven lenses, reflex housing, accessories.

The big tele-camera was a product of Schulthess' creative imagination and the mechanical ingenuity of Swiss machinist-craftsmen who work for Conzett & Huber, publishers of *Du*. Essentially, it is a long wooden box built to accommodate a 1500-mm Apochromat Tessar f/15 lens—an optical marvel originally designed for photoengraving. The box is mounted on a sturdy four-legged stand with fine adjustments for tilting, revolving, and leveling. The "business end" of the super-camera is equally a triumph of ingenuity. The box, comprising a reflex mirror,

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shutter, and viewing screen, is from a 9x12-cm Primarflex. The back is from a 4x5 Graflex, permitting him to use large sheet film, and also adapting to 120 roll-film and 35-mm cameras. At the front of the Primar box is a front rim from a Sinar precision view camera, fitting it to the long bellows which in turn attach to the wooden box. The whole rear unit is mounted on a double metal track and regulated by a fine-toothed rack-and-pinion. It is detachable from the big box, and with a 180-mm Tessar f/4.5 lens and a special handle, it becomes a versatile hand camera.

The "fish-eye" 180° wide-angle camera was likewise a tour de force of design and engineering. Schulthess had acquired a British-made Beck f/7 lens with a 38-mm focal length. A machinist helped him fit it to a Sinar focal-plane shutter and a 4x5 back, so that it produced a circular image 3¼ inches in diameter on the large sheet film. The lens is not color-corrected, and its wide field would mean great disparity in the refraction of various colors on the film plane. But there is a built-in red filter which renders all light from the subject monochromatic, so the image is free from chromatic aberration.

George Caerna

"Big box" on skyline: Schulthess, atop Hotel New Yorker, sights across midtown Manhattan toward Long Island, using reflex housing with Leica attached to 4x5 back on homemade super-telephoto camera.

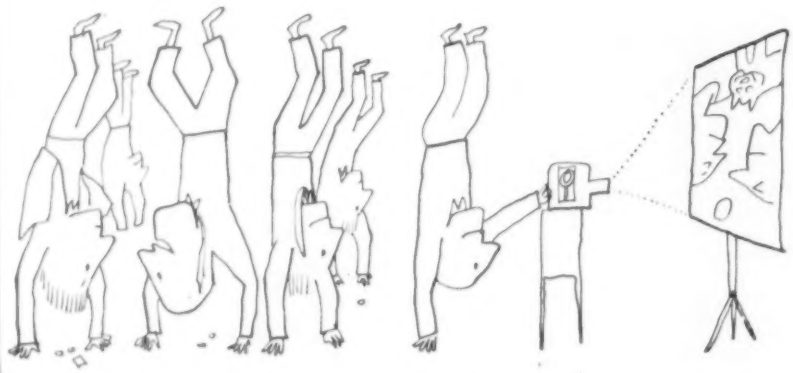
The 35-mm cameras and the detachable part of the tele-camera have their own custom-designed cases. The Leicas and their lenses are fitted so precisely in a small suitcase that even without heavy padding they can take a good deal of banging without damage. The wooden chest that holds the Primar box has a hinged compartment on one side to accommodate small accessories and the tools necessary to assemble the big camera.

Slight, personable, fortyish Emil Schulthess encountered photography first during his art training at the renowned *Kunstgewerbe* school in Zurich. He remained an amateur photographer through three years of free-lance commercial art, and for several years after he joined Conzett & Huber in 1937. *Du* magazine began publication in 1941, and Emil was assigned to it to do layouts (as it developed, he did all of them). Soon he was taking pictures for the magazine, and his professional career with a camera was under way. His first big job was a set of museum pictures; these won such acclaim that photography became a more and more important part of his job. By 1947, he had taken on an assistant to do layouts, and he was free for a lot more camera work.

At first, when he got an idea for a picture story, he told no one about it until it was finished and ready for publication, fearing that the job might turn out to be less than perfect. Now, though, his projects are so big and ambitious that he must share his plans with the *Du* staff. Still, when he conceived the American project, he worked out a detailed, day-by-day itinerary before presenting the idea to his fellow editors.

Schulthess, so far, has taken his cameras and his creative eye to four continents, and into fifteen European countries. One of his most memorable sets of pictures, which was reproduced in color around the world, was that of the midnight sun, made in northern Norway. He and his assistant stayed awake in shifts for 60 hours to get an unprecedented film document of the sun's passage through the Arctic sky.

His position is one for any working photographer to envy: he is one of the editors of the magazine that publishes his pictures. No U. S. pro can make that statement! The other staff members respect his judgment about pictures and how they should be used. It's a comfortable position, one that Schulthess well deserves, and he proves it continually. He is one of the world's finest creative camera reporters.—*H. M. Kinzer.*



"Bill always likes to do things the hard way!"

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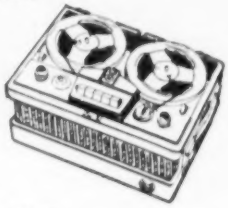
1956 Model 700 *Tape-o-Matic* Recorder:

The Voice of Music



NEW! And this is IT . . . for the recording perfectionist! VM Corporation—the world's largest manufacturer of phonographs and record changers—and D. F. A. now bring you a recorder with more professional features than any in its price range.

Here's but a short list of some of the Voice of Music's "ear openers":

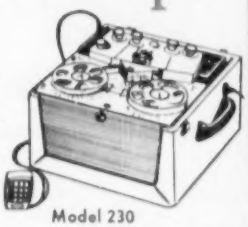
- **Monitor Switch** . . . hear actual recordings while made "live" from radio or magnetic cartridge pickup
- **Woofer-tweeter speaker system**
- **High fidelity** . . . from 40 to 15,000 cycles
- **Dual input, dual output jacks**
- **Use as phono amplifier or P. A. system**

VM Tape-o-Matic only **$179.95 Cash or $17.99 Down!**

For the inside story on the feature-packed VM Tape-o-Matic Recorder write to DOWLING'S Fifth Avenue for FREE brochure **today!** Or—if you have a special recording or hi-fi problem—please feel free to write for personal advice to our audio consultant, Ralph Thomas.

Golden Tone Webster Electric Ekotapes

the ultimate in sheer functional beauty and high-fidelity!



Model 230

- Finger-tip operation
- Single unit control
- Interlocking erase . . . prevents accidental erasure
- Instantaneous speed change to 3¾" or 7½", as desired
- PLUS a host of other features, making Ekotape **your** best tape recorder buy among recorders of the highest calibre

EKOTAPE Model 240 (2 speed) ..... **$189.50 Cash or $18.95 Down**
EKOTAPE Model 230 (2 speed; single 5 x 7 oval PM speaker ..... **219.50 Cash or 21.95 Down**
EKOTAPE Model 220 (2 speed; automatic speaker silencer; counter; 2 speakers, 5 x 7 oval woofer; 3" tweeter—10,000 CPS guaranteed) ..... **239.50 Cash or 23.95 Down**
EKOTAPE Models 222 and 224 (similar to Model 220 but with 6 x 9 woofer; housed in beautiful LIMED OAK or MAHOGANY table cabinet—please indicate your preference ..... **259.50 Cash or 25.95 Down**

FREE Golden Tone EKOTAPE brochure on request, or order directly from DOWLING'S Fifth Avenue **today!**

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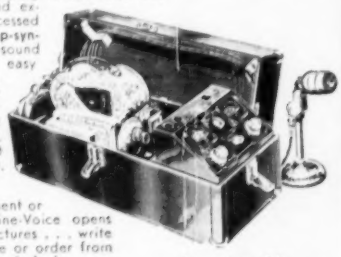
You'll find this so convenient and economical too. No need for you to estimate shipping costs. D. F. A. pays all regular shipping and insurance expenses . . . and guarantees safe arrival of your equipment. This includes A.P.O., F.P.O. and export orders! Upon request, air shipments gladly made; and you'll be billed just for the slight extra cost!

AURICON *Cine-Voice*

YOU can produce 16mm talking pictures the Hollywood way! While "shooting", the Cine-Voice camera simultaneously photographs a sound track along one film edge. The film cost, black and white or Kodachrome, is identical to silent types. Magnetic striping is **not** required, saving you both time and expense. Best of all, the processed film plays **perfectly lip-synchronized** on any 16mm sound projector! Compact and easy to operate — either from house current or portable power pack — your Cine-Voice outfit is furnished **complete** as illustrated. Standard "C" mount lenses only are optional.



Whether for home enjoyment or professional use, the Cine-Voice opens a new world of sound pictures . . . write for **free** Auricon brochure or order from DOWLING'S Fifth Avenue **today!**

Cine-Voice, Single Lens Model, **$695. Cash or $69.50 Down;**
Cine-Voice, 3 Lens Turret Model, **$784.50 Cash or $78.45 Down;**

Auricon Super-1200, 1200' capacity, **$4652.15 Cash or $465.21 Down.**

Just out! All-new Auricon-Pro, 600' capacity model **$1165. Cash or $116.50 Down.**

Write D. F. A. for FREE brochure!

Amazing New Auricon Filmagnetic!

For optional lip-synch', single system, magnetic sound recorded **as you film** . . . Filmagnetic Outfit complete on **new** Auricon cameras **$870. Cash or $87. Down.** Or . . . write D. F. A. for details on installation on your present Auricon equipment!

1956 Konica II

More quality features than any camera in this price range!

This unusual camera is made to order for the photo fan who is a comparison shopper. Superbly designed, it boasts many features found in only the most expensive cameras. Its precision workmanship is a product of one of the world's oldest and largest manufacturers of fine photographic equipment.

Some of the unique KONICA II features are:

- **You only use a single fingertip for focusing.**
- **You only use one eyepiece for focusing and viewing.**
- **You get more shutter speeds (9 speeds to 1/500 sec.)**
- **You get the fastest, finest lens in any camera under $100 (the famous f2.8 Hexanon).**

NOW only $89.75 Cash or $8.97 DOWN!

Leather eveready case for KONICA II **$9.75**
Autoup (20" to 40") **9.00**
Sunshade **1.75**

It "pays" to order your new KONICA II **directly** from DOWLING'S Fifth Avenue. Your order will be expertly packed for shipment, with safe arrival guaranteed. Take advantage of our famous Air Service, if time is short. Chances are this will make your new KONICA II not more than a day away—whether you live in Tacoma or Tallahassee! Yes, we are usually "closer" than a local store. Most important: We have it in stock; and your purchase is backed by our unconditional guarantee of satisfaction, or your money back within 30 days. Always shop the **easy** way—the D. F. A. way—by mail! It's a good habit!

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LIFETIME GUARANTEE

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1956 Linhof

Super Technika Cameras

4 x 5 model with multifocus rangefinder, universal back and 150mm Xenar coated f/4.5 lens **$419.70 Cash or $41.97 Down.** Linhof 2¼ x 3¼ outfit with multifocus rangefinder and 3 lenses complete **$564.16 Cash or $56.41 Down.**

1956 argus OUTFITS

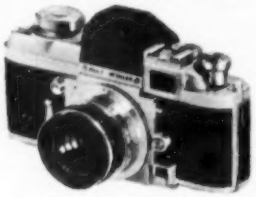
Argus C-3 Camera, flash and eveready case **$66.50 Cash or $6.65 Down. Complete** C-3 Outfit (8 units!) with above **plus** famous-make photo electric exposure meter; case; chain; hand-stitched gadget bag to hold all — only **$74.50 Cash or $7.45 Down.** Argus C-4 Camera, flash and eveready case **$99.50 Cash or $9.95 Down.**

Outstanding new 1956 ENLARGERS

Beseler 4 x 5 **$198.75 Cash or $19.87 Down;** Beseler 5 x 7 **$239.75 Cash or $23.97 Down.** Leitz Focomat Ic **$147. Cash or $14.70 Down;** Leitz Focomat IIa (incl. 2 lenses) **$460. Cash or $45. Down;** Leitz Valoy II **$96. Cash or $9.60 Down.** Omega A-2 Portable **$96.50 Cash or $9.65 Down; Automega B-7 $139.50 Cash or $13.95 Down;** Omega D-2 **$192.50 Cash or $19.25 Down;** Omega D-3 **$222.50 Cash or $22.50 Down.**

ALPA the ALL-IN-ONE 35mm Camera

precision-built in Switzerland



- **Optional Focusing:** Single-lens reflex groundglass or individual, single-window, coupled rangefinder AND multifocal, "sportstype" viewfinder.
- **Unsurpassed Optics:** Every one of the coated, high-resolving power ALPA lenses (wide angle through 3750mm!) is individually tested, carries an unconditional guarantee. Choice of click stops or FULLY automatic diaphragm with 50mm lenses.
- **Are you a perfectionist? Here's your answer:** The superlative Kern Switar 50mm coated f/1.8 APOCHROMAT, the **only** lens for 35mm cameras correcting all 3 primary colors, including red. Gives critical definition even at full aperture. f/1.8 (200 lines per mm.).
- ***Your Choice of Lens Determines Price of Camera***
- **Unique Eveready Case:** Holds ALPA with wide angle, 50, 75 or 90mm lens; **plus** sunshade, filters and exposure meter.

	ALPA 5 (Prism Reflex)	10% Down	ALPA 7 (Prism Reflex & Range-finder)	10% Down
Schneider Xenon 50mm coated f/1.9 with FULLY automatic diaphragm	$389.00	$38.90	$429.00	$42.90
Kern Switar 50mm coated f/1.8 APOCHROMAT with FULLY automatic diaphragm	419.00	41.90	459.00	45.90
Macro-Kilar E 40mm coated f/3.5	314.00	31.40	354.00	35.40
Macro-Kilar D 40mm coated f/3.5	339.00	33.90	379.00	37.90

Selected ALPA Wide Angle and Telephoto Lenses

Angenieux Retrofocus 28mm coated f/3.5 lens	$ 139.00
Old Delft Alfinar 38mm coated f/3.5 lens	89.00
Schneider Xenar 80mm coated f/2.0 lens	169.00
Schneider Tele-Xenar 90mm coated f/3.5 lens	119.00
Old Delft Algular 135mm coated f/3.2 lens	129.00
Zoomar Reflektar 3750mm coated f/25.0 lens	3500.00

NEED DOLLARS?

If you live in a country whose currency is non-convertible with U. S. dollars, you may be uncertain about how you can purchase from Dowling's Fifth Avenue. We may have the answer! Without obligations, please write for free details on payment with convenient Unesco Gift Coupons!

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NEW FME

Two-Speed, High-Fidelity TAPE RECORDER

- Dual speed: 3¾" and 7½" per second
- High-fidelity that will delight the most discriminating user
- Two-hour playing time
- Single knob control for quick, easy operation
- Neon record level indicator
- Radio-phono-TV input jack
- External speaker jack for large audiences, or for ear-phones
- Compact, light, attractively styled and sturdy two-toned case
- Plus a host of other features usually found only in machines selling for twice the price
- Foot pedal stop switch available as accessory

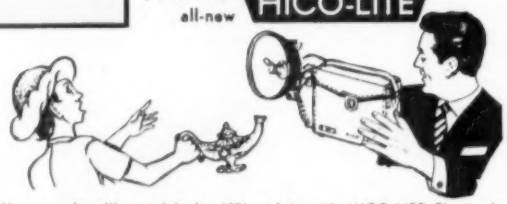
only $139.95 Cash or

Only **$13.95** DOWN

Superb FME Model 47-A also available. $159.50 Cash or $15.95 Down!

Aladdin . . . Trade in Your Lamp!

. . for the all-new HICO-LITE



Your magic will certainly be 1956-variety with HICO-LITE Electronic Flash at your command. New worlds of picture-making possibilities will literally open before your eyes. The story is too big and too important for details here. Suffice to state: In advanced design, compactness and light-output — HICO-LITE is in a class by itself. Write directly to DOWLING'S Fifth Avenue **today** for **all** the facts. You'll learn about a rigid guarantee unlike anything else in the electronic flash industry. You'll read about HICO-LITE **convertibility** — an amazing account of how your 109 Pro Deluxe may be modified to a 228 Deluxe or even to a Deluxe Portable Portrait Unit, at any time, without scrapping or trading your existing equipment!

Or, here are the essentials for immediate ordering:

HICO-LITE 109 Pro Deluxe (complete with battery and shutter cord)	**$124.50 Cash or $12.45 Down**
HICO-LITE 228 Deluxe (complete with battery and shutter cord)	**194.50 Cash or 19.45 Down**
HICO-LITE AC Conversion Pac	**27.50 Cash or 2.75 Down**
HICO-LITE Deluxe Portable Portrait Unit	**349.50 Cash or 34.95 Down**

Free postage and insurance — of course! **Really** easy — interest-free — terms: Naturally . . . when your order is mailed directly to DOWLING'S Fifth Avenue!

USE COUPON ON NEXT PAGE TO REQUEST YOUR COPY OF OUR COMPLETE NEW 1956 CATALOG . . . IT'S *FREE!* MEANWHILE BUY *ANY* CURRENTLY ADVERTISED PHOTOGRAPHIC PRODUCT FROM D. F. A. JUST SEND IN YOUR ORDER *TODAY!*

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The incomparable new 1956 Leica M-3

Leica M-3 w/ Elmar coated f/3.5 lens **$348. Cash or $34.80 Down**
Leica M-3 w/ Summicron coated f/2.0 lens **447. Cash or 44.70 Down**
Leica M-3 w/ Summarit coated f/1.5 lens **468. Cash or 46.80 Down**
Leica M-3 Body without lens **288. Cash or 28.80 Down**

LEICA M-3 ACCESSORIES

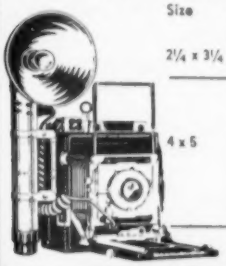
Summaron-M coated 35mm f/3.5 lens	$ 99.00 Cash or	$ 9.90 Down
Elmar-M coated 90mm f/4.0 lens (standard mt.)	93.00 Cash or	9.30 Down
Elmar-M coated 90mm f/4.0 lens (collapsible)	150.00 Cash or	15.00 Down
Hektor-M coated 135mm f/4.5 lens	141.00 Cash or	14.00 Down
Leica Meter-M	30.00 Cash or	3.00 Down
Adapter, standard Leica lenses to M-3	10.50 Cash or	1.05 Down

OTHER SUPERB NEW LEICA PRODUCTS

Stemar (Leica Stereo), complete	$297.00 Cash or	$29.70 Down
Valoy II Enlarger	96.00 Cash or	9.60 Down
Leica IIf with Elmar coated f/3.5 lens	$177.00 Cash or	$17.70 Down
Leica IIf with Summaron coated f/3.5 lens	216.00 Cash or	21.60 Down
Leica IIIf with Elmar coated f/3.5 lens	237.00 Cash or	23.70 Down
Leica IIIf with Summaron coated f/3.5 lens	276.00 Cash or	27.60 Down
Leica IIIf with Summicron coated f/2.0 lens	336.00 Cash or	33.60 Down
Leica IIIf with Summarit coated f/1.5 lens	357.00 Cash or	35.70 Down

1956 Pacemaker GRAPHIC OUTFITS

All brand new, latest models, with factory guarantee! Includes: • Graflok back • Ektalite screen • new Graphic coupled rangefinder with Rangelite and automatic parallax viewfinder • new full image wire finder • Graflite 3 cell flash gun • deluxe case • film pack adapter or roll film holder • 6 cut film holders • adapter ring • sunshade • 4 filters. Prices below include all this extra equipment! Easy payments available!



Size	Coated Lens in Shutter	Speed Graphic	Crown Graphic
2¼ x 3¼	101mm Ektar f/4.5 (1/800 sec.)	$338.	$299.
	105mm Tessar f/3.5	299.	279.
	105mm Ektar f/3.7	343.	294.
4 x 5	135mm Schneider Xenar f/4.7	299.	279.
	135mm Optar f/4.7	368.	319.
	127mm Ektar f/4.7	368.	319.
	135mm Tessar f/4.5	348.	299.
	150mm Tessar f/4.5	348.	299.
	150mm Schneider Xenar f/4.5	348.	299.
	152mm Ektar f/4.5	386.	337.
	135mm Schneider Xenar f/3.8	348.	299.
	150mm Tessar f/3.5	399.	379.
	150mm Schneider Xenotar f/2.8	499.	459.

New Graphic rangefinder is manufactured for 4 X 5 cameras only. 2¼ X 3¼ outfits are supplied with Kalart coupled rangefinder.

New 1956 Revere 88

Runs by itself! Model "553" (300 watt, automatic) $79.50 Cash or $7.95 Down; Model "555" (500 watt, automatic) $89.50 Cash or $8.95 Down; Model "888" (500 watt, fully automatic) $144.50 Cash or $14.45 Down. Pr. incl. 7 trays and case.

1956 MINOX III. S

Fabulous! Weighs 2½ ozs.; 3" long. Automatic transport takes 50-exposure film. Built-in flash; 9 speeds to 1/1000th sec.; sharp f/3.5 lens. With case and chain $139.50 Cash or $13.95 Down. Accessory reflex finder $27.50; right-angle finder $14.95.

new 1956 Nikon S-2

Life-size rangefinder/viewfinder; rapid film transport; full synch; speeds to 1/1000th sec. With Nikkor coated f/2.0 lens $299.50 Cash or $29.95 Down; or with Nikkor coated f/1.4 lens $345. Cash or $34.50 Down. A real gem!

New 1956 Automatic Exakta VX

With fully automatic diaphragm lens listed: Tessar f/2.8 $259.50 Cash or $25.95 Down; Westagon f/2.0 $289.50 Cash or $28.95 Down; Biotar f/2.0 $345. Cash or $34.50 Down; Xenon f/1.9 $351.70 Cash or $35.17 Down. With Pentaprism R/F add $47. Cash or $4.70 Down.

ALL NEW 1956 RETINA IIIc

Built-in exposure meter and with normal Xenon coated f/2.0 lens in M-X shutter — $190. Cash or $19.00 Down. Optional: Curtar 35mm coated f/5.6 wide angle lens $62.50 Cash or $6.25 Down; Longar 80mm coated f/4.0 telephoto lens $82.50 Cash or $8.25 Down. Retina IIc $139.50 Cash or $13.95 Down.

New 1956 PORTABLE Radio-Phonograph Combinations

RCA "Skipper" battery-operated $65.80, battery and AC $79.75. Webcor (AC 3 speed automatic changer) $99.50. Superb Metz battery AC (AM and choice FM or short wave!) $129.50. Available for 10% down.

1956 Kodak Brownie Movie Outfits

Complete outfits with Brownie Movie Projector. Including single Lens (f/2.7) camera $99.50 Cash or $9.95 Down; or (f/1.9) camera $108.75 Cash or $10.87 Down; or Turret (f/1.9) camera with wide angle and telephoto $141.50 Cash or $14.15 Down.

1956 POLAROID Land Cameras

Highlander camera only $69.95 Cash or $6.95 Down. Complete Highlander outfit: camera, flash, meter, case for outfit, and 3 rolls of film only $97.50 Cash or $9.75 Down! Speedliner New 700 $125. Cash or $12.50 Down.

1956 2¼ X 2¼ Single Lens Reflex Cameras! Hasselblad

1000F with Ektar coated f/2.8 lens $379 Cash or $37.90 Down; Hasselblad Superwide with Biogon Coated f/4.5 lens $489.50 Cash or $48.95 Down. Exakta 66 with Tessar Coated f/2.8 lens $319.50 Cash or $31.95 Down.

NEW Models 1956 Rolleis

Rolleicord V with Xenar f/3.5 lens $134.55 Cash or $13.45 Down. Rolleiflex with Xenar f/3.5 lens $217.50 Cash or $21.75 Down; or with Tessar f/3.5 lens $232.50 Cash or $23.25 Down. New Rolleiflex 2.8D with Xenotar or Planar f/2.8 lens $291.50 Cash or $29.15 Down.

Top 1956 16mm Equipment!

B&H 70-DR, TTH f/1.9 $385.50 Cash or $38.50 Down; B&H Filmosound 202 $719. Cash or $71.90 Down; Cine-Kodak K-100, Ektar f/1.9 $269. Cash or $26.90 Down; CineKodak Special II, Ektar f/1.4 $1175. Cash or $117.50 Down.

Complete 1956 Keystone 5-Unit Movie Outfit

Top-quality Olympic 8mm turret camera with normal f/2.5 lens, Kinotar wide angle f/2.5 lens, Kinotel telephoto f/3.5 lens, latest Brockway M-3 exposure meter, plus roll 8mm Kodachrome film. Complete $139.50 Cash or $13.95 Down.

ALL EQUIPMENT LISTED IS BRAND NEW—FACTORY PACKED. OUR STOCKS OF BOTH USED AND NEW EQUIPMENT ARE HOWEVER MOST EXTENSIVE. PLEASE WRITE FOR ANYTHING PHOTOGRAPHIC.

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Your trade-in may be used as down payment! It will be returned at D.F.A.'s expense if you don't accept our top offer.

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☐ Send FREE 1956 Catalog. ☐ Send pamphlet on "Deferred Payments."

Name _____
Address _____
City or Town _____ State _____

MAIL TODAY

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FIFTH AVENUE

Visit our Skyline Suite to say "Hello!"

Hitch your wagon to the star! . . .
1956 CONTAX II-A and III-A

ZEISS IKON

Single-window for rangefinder and viewfinder, metal focal plane shutter, removable back, bayonet lens mount, delayed action release, full built-in flash synchronization are just a few of the reasons for the acknowledged leadership of CONTAX! Contax II-A with Tessar coated f/3.5 lens **$261. Cash or $26.10 Down**; with Sonnar coated f/2.0 lens **$345. Cash or $34.50 Down**; or with Sonnar coated f/1.5 lens **$374. Cash or $37.40 Down**. For Contax III-A (with built-in exposure meter) add **$38. Cash or $3.80 Down.**

Selected Contax Lenses and Accessories

Biogon 21mm f/4.5	$249.00 Cash or $24.90 Down
Biogon 35mm f/2.8	183.00 Cash or 18.30 Down
Planar 35mm f/3.5	102.00 Cash or 10.20 Down
Triotar 85mm f/4.0	106.00 Cash or 10.60 Down
Sonnar 85mm f/2.0	229.00 Cash or 22.90 Down
Sonnar 135mm f/4.0	146.00 Cash or 14.60 Down
Stereotar C, 35mm f/3.5's	159.00 Cash or 15.90 Down
Stereo Prism Attachment	37.00 Cash or 3.70 Down
Stereo Viewfinder	10.00 Cash or 1.00 Down

1956 ▲ IKOFLEX

Ikoflex I-A with Novar coated f/3.5 lens in Prontor full synch' shutter **$76. Cash or $7.60 Down; Ikoflex I-A** with Tessar coated f/3.5 lens in Prontor full synch' shutter **$96. Cash or $9.60 Down;** and the superlative **Automatic Ikoflex II-A** with Tessar coated f/3.5 lens in Synchro-Compur MX shutter **$126. Cash or $12.60 Down.**

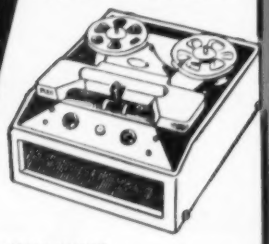
1956 CONTAFLEX

The gem of all 35mm Single Lens Reflex cameras! Ground-glass eye-level focusing is combined with split image rangefinder. Superb Tessar 45mm coated f/2.8 lens with fully automatic diaphragm. Contaflex I **$169. Cash or $16.90 Down;** Contaflex II (Built-in meter) **$199. Cash or $19.90 Down**

Just released! . . . Brand new 1956 CLIPPER THE SUPERB Pentron PORTABLE TAPE RECORDER

With Exclusive MONOMATIC* CONTROL

MONOMATIC is a single knob control providing instant selection of Record or Play, in either 7½" or 3¾" tape speeds, as well as Fast Forward and Fast Rewind. Any position may be selected by a flick of the finger, in either tape speed.



The CLIPPER
(Don't confuse with discontinued models)
Regularly $129.50. **Now,** from D. F. A., only **$99.50**

Cash or only $9.95 Down

- **Plays in any position!**
- **Simplest to operate**
- **High fidelity performance**
- **2-speed, 2-hour operation**

DOWLING'S Fifth Avenue also features
Pentron Multi-speed Portable Tape Recorder.
$189.50 Cash or $18.95 Down
Pentron 3 Speaker High Fidelity Tape Recorder for life-like dimensional presence.
$225.00 Cash or $22.50 Down

Hi-fi enthusiasts! Write D. F. A. for free brochure on Pentron low cost hi-fi tape components for portable use and custom installations!

A Cordial Invitation...

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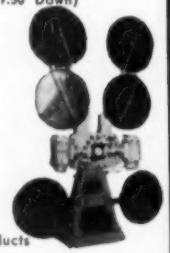

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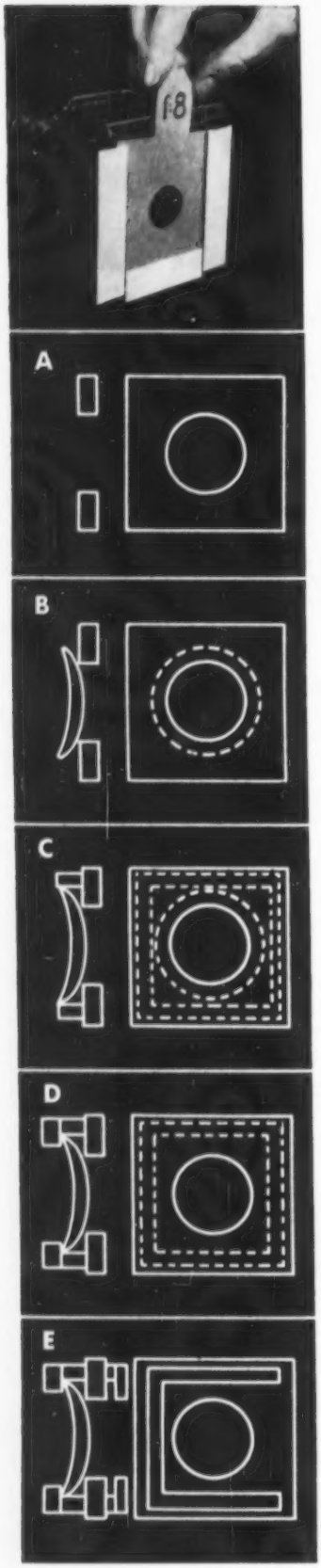
SPECTACLE LENSES

Here's a low-cost portrait lens featuring 'controlled diffusion'

By LLOYD WEST



COULD YOU use a good long-focal-length lens for your press or view camera? Most photographers desire such a lens but high cost prevents purchasing it. You can obtain the advantages by using a low-cost spectacle lens. These lenses can be adapted very easily to be used as camera lenses and produce excellent results.

Spectacle lenses feature "controlled diffusion," which can be found only in a few specially designed high-priced camera lenses. At large openings spectacle lenses show considerable diffusion, which diminishes as the lens is stopped down, and disappears completely at very small openings. This property, and the fact that they are available at any focal length, make spectacle lenses especially well suited for portraiture and pictorial work where some diffusion is desirable. An optician or optometrist can provide a lens of any desired focal length at a very reasonable cost.

The spectacle lens can be used on any camera which has groundglass focusing and double bellows extension. Most press and view cameras provide these features. If you have a focal-plane shutter it can be used for making the exposure. The lens can then be mounted in an extra lensboard that fits your camera. Cardboard cutouts will serve as the diaphragm openings. (See accompanying illustrations.)

If your camera does not have a focal-plane shutter you will have to purchase a shutter and lensboard to fit it. Shutters without lenses can be bought very reasonably. It does not matter how old the shutter is, as long as it operates efficiently. The opening in the lensboard which accommodates the lens should be slightly over 1½ inches in diameter. Obtain the shutter first and ask the optician from whom you purchase the spectacle lens to grind it into the opening on the shutter. Most shutters have a retaining ring which will hold the lens in place. The new shutter has to be mounted in the lensboard, which you can then exchange at will with the one holding your regular lens.

The focal length of a spectacle lens depends on its strength, which is expressed in diopters. A diopter may have either a plus or minus rating. The lenses discussed here are always of plus-diopter type. The focal length of a spectacle lens having the strength of one diopter is about 40 inches. To find the focal length of any spectacle lens in inches, just divide 40 by the diopter strength of the lens. Spectacle lenses are usually sold in strengths ranging from .25 diopter to 6 diopters in steps of .25 diopter. A few of the more popular spectacle lenses rated in diopters and their corresponding values in inches are listed below.

Power in diopters	Approximate value in inches
5.00	8
4.50	8¾
4.00	10
3.50	11
3.00	13

Once the focal length of the spectacle lens is known, establish the diaphragm openings for the lens. The diaphragm openings on the shutter purchased will not be valid for the spectacle lens, and new markings have to be made.

The method of establishing the hole of proper diameter for any *f*-stop opening is: divide the focal length of the spectacle lens in inches by the desired *f*-stop value. The result is the diameter of the hole required for that *f*-stop. Example: You have a lens of plus five diopters. From the above table or calculation, the focal length equals 8 inches. To determine the diameter of the hole required for *f*/8, the length (8) is divided by the *f*-stop (8). $8 \div 8 = 1$, so the diameter of the hole required is 1 inch.

With the new shutter in hand, open the diaphragm until a hole of the calculated size is reached. Then mark with a sharp edge the spot where the diaphragm lever stands on the lens mount. Continue this procedure until all the usual *f*-stops are calculated and marked on the lens mount. The largest opening will be limited by the diameter of the lens, about 1½ inches.

If you are using a focal-plane shutter with the spectacle lens cut the round holes, which were calculated for the diameters of the various *f*-stops, into square pieces of cardboard and mark on the cardboard the value of the *f*-stop as illustrated at top left of page.

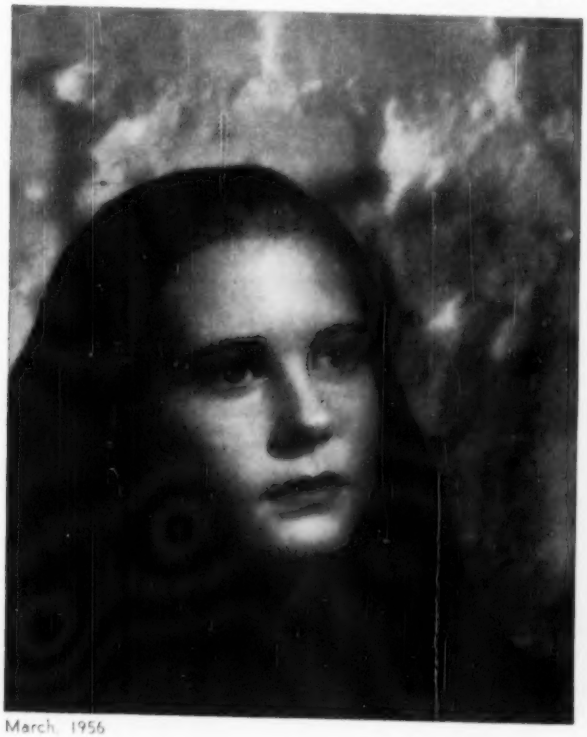
Since these lenses offer such a large range of "controlled diffusion" it is important to check the groundglass at the *f*-stop that will be used at the time of exposure to show exactly how the final negative will appear.—

F-stops are made from cardboard cutouts (top left) if your camera is equipped with a focal-plane shutter. Spectacle lens is mounted in extra lensboard as follows: **A)** hole is cut in lensboard ¼ in. smaller than spectacle lens. **B)** lens is laid on back of lensboard with convex side facing outward (away from film). **C)** cardboard or plywood frame the same thickness as lens is glued on back of lensboard around lens. **D)** a second slightly wider frame is glued on top of first, to hold the lens firmly in place. **E)** on front side of lensboard three narrow strips of cardboard are pasted around three sides of the lens hole. Wider strips are then pasted on top of the narrow strips. The overlapping strips are tracks for the *f*-stop cardboards (see top left).

Controlled diffusion range of lens is considerable. The above was taken at *f*/5, the largest *f*-stop possible with a lens of 1½ in. diameter.

Maximum sharpness was obtained by reducing the opening to *f*/45. Sharpness of spectacle lens compared well with the higher-priced lenses.

Diffused portrait was taken with spectacle lens stopped down to *f*/8. Tests indicated that diffusion is most pleasing between *f*/8 and *f*/16.



Separation of foreground and background is lessened in photo taken at *f*/16. Backgrounds usually are more pleasing when slightly diffused.

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MARKET BRIEFS FROM BRITAIN

Here, for the first time, the British Edition of POPULAR PHOTOGRAPHY offers you an opportunity to get a first-hand report about new and recently introduced items of camera and darkroom equipment in England—the world's second-biggest photographic marketplace. Not only will American readers have a chance to appreciate these products as they are described by POPULAR PHOTOGRAPHY's informed representatives in England, but also to buy—either directly or through American distribution channels in all cases where they have been established.

A second and no less important purpose of this feature is to strengthen the "hands across the sea" bonds that have existed continually between us and our British cousins. To international amity and to the further fulfillment of your needs, this department is, therefore, dedicated.

As in the United States, photography is big business in England. Constant research and investigation are going on there to find new and better ways to make good pictures. All of the items mentioned here and in later instalments of this feature will have been examined personally by our British representatives, who can vouch for their excellence and the good values they represent.

On items valued at less than $1, U. S. Customs duties are not charged. For items valued higher, the approximate amount you'll be asked to pay will be indicated at the end of the product description.

•

The fabulous new Ilford developer, "Microphen," described in the June issue of POPULAR PHOTOGRAPHY, is causing a sensation everywhere. Based on a completely new developing agent, "Phenidone," Microphen gives grain as fine as M-Q borax developers, but at the same time increases film speeds, can stand more "pushing," and keeps better. Leading American dealers have it, but you can also buy it direct from the manufacturer by sending a money order for 62 cents for the 21-ounce size, or 98 cents for the 88-ounce size to the makers, *Ilford Limited, Ilford, London.*

•

England's largest photographic dealers, Wallace Heaton's, have a big department dealing solely with overseas orders, and will send you a comprehensive 160-page catalog for 15 cents worth of International Reply Coupons (obtainable at any post office), which covers the postage. It's full of interesting bargains, such as the "Kagra" remote-control release, which operates at a distance of 34 feet. Heaton's will post it to you for $6. (Duty, about $2.40). Write to *Wallace Heaton Ltd., 127 New Bond St., London.*

•

Another revolutionary development is the new capless flashbulb marketed in England by the Philips Company. This midget has a 6,500-lumen-second output, and fits any standard flashgun by means

of a simple adapter which has its own ejector. They're 10c for white and 12c for blue (daylight) type, and adapter 21c. You can write direct to any London dealer mentioned in this column to obtain yours.

•

Planning a European holiday? You'll really enjoy it to the utmost if you're equipped with a camera or binoculars fitted with the world-famous Ross optical system. Full details of the optically and mechanically perfect Ross cameras or binoculars can be had from any dealer mentioned in *Market Briefs from Britain.* Cameras range from $6.30 for a box type, to $106.40 for a folding job with coupled rangefinder. Binocs from $84 to $134.40.

•

Here's a cleverly designed battery-operated slide viewer that's smaller than your hand, folds up in a dust-tight package, and slips into your pocket—the Paterson Viewer. Yet it has an optically worked lens and will give a magnified, illuminated image that will surprise you.

It is fabricated of heavy, shock-resistant plastic—made by London's R. F. Hunter Ltd., 51 Gray's Inn Road. *Send $5 to any London dealer mentioned here and get one. (Duty, about $1.40).*

•

Ever use a film *rated by its makers* at ASA 400? Probably not. But Ilford HPS, London made, is just that, and in use it can be shot at much higher ratings (especially when developed in Ilford's Microphen). Shots anywhere indoors are easily possible without supplementary light. Any London dealer will post it to you for 98¢ for a 36-exposure, 35-mm cassette (refills, 56¢), or 31¢ for the 120 size. HPS sheet film is also available. Leading U.S. dealers have it too.

•

Powerful Prismatic Binoculars From Britain are the special this month from one of London's oldest and best camera dealers, Dollond and Aitchison. The exclusive Dollond model "Owlux" magnifies 20 times, with a 60-mm entrance pupil. It's London made, and ideal for long-distance viewing, or for the hunter or naturalist. This 20x60 model is only one of a big Dollond series, and can be had for $152.30, delivered to you. (Duty is about $65). Write for a free catalog to Dollond & Aitchison Ltd., 28 Old Bond St., London.

•

Bell & Howell camera users will be pleased to know that when they go to London there's a B&H store especially established to serve them. A fully qualified staff is there to supply spare parts, do repairs, or give general advice and they have a wide range of new products and accessories. You'll find typical British hospitality at the store of *Bell & Howell, 17 Hanover Square,* in the famous West End.

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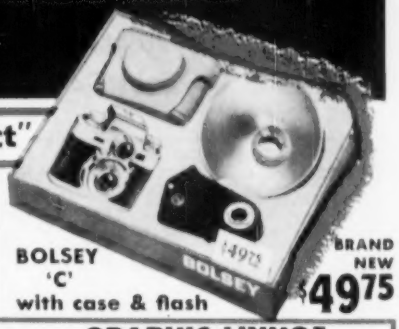

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Voigtlander Bessall, Heliar 3.5.	164.50	68.50
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B & H Mag. 172-B F:1.9	164.95	89.00
Cine Kodak Mag. F:1.9	149.50	56.90
Cine Kodak Brownie F:2.7	37.50	19.50
Revere 88, F:2.5	74.50	29.25
Revere 84, Turret, F:2.5	122.50	46.00
Vistascope 8mm	75.00	44.00
Wollensak 53, 3 lenses	199.50	128.00
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B & H 'Regent' 500W. case	179.95	89.50
Keystone K 100 latest, case	99.50	56.75
Keystone K 109, splicer, case.	159.50	74.95
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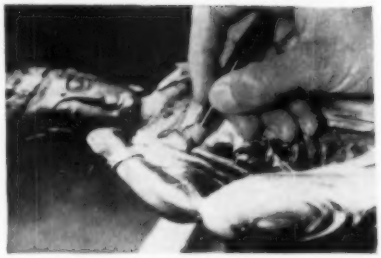
PHOTO TIPS—
SHORT CUTS TO BETTER PICTURES

Check Film in Tank

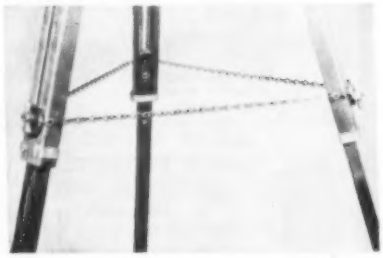
If two sheets of film are slipped accidentally into one groove in the developing tank, or caught in a single groove at one side of the tank, circulation of developer between them is impeded, with resultant degrading of the negatives. After loading the tank, it's a good idea to slide one finger over the tops of the negatives for simultaneous check of count and spacing, at each side of the tank. A shortage in count indicates two sheets in one groove.—*H. J. Kennard, Gonzales, Texas.*

For Print Retouching



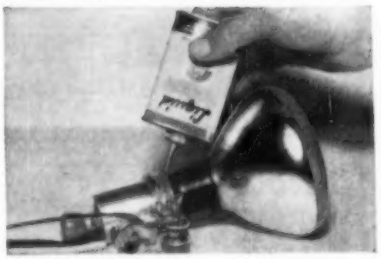
An efficient and inexpensive aid in retouching prints is an eyebrow pencil, which has been found to "take" readily to various paper surfaces. About twice the required density is applied to the print, and the area then blended in with fingerprint or absorbent cotton. One end of the pencil can be kept sharpened to a very fine point for delicate retouching, and the other end rather blunt for larger areas. They're available in several shades. —*F. Barst, Portland, Ore.*

Added Height for Tripod



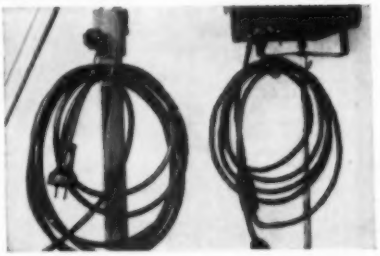
Sometimes just a little more height is required for a tripod, even after full extension of the tripod legs; drawing them together will help gain the needed height, but at the risk of their sliding apart—usually just as you trip your camera shutter. Three equal lengths of strong, lightweight chain and three metal key rings will solve the problem, when used as illustrated here. Chains can be shortened by inserting rings into links other than end links.—*B. Brownold, Cedarhurst, N. Y.*

Loosening Stubborn Bulbs



When replacing a burned-out photoflood bulb, it is not ususual to find that the base of the bulb is stuck fast in the threaded socket. This may necessitate breaking the bulb and removing the base with pliers—often at the expense of a ruined socket. An easier method is to apply a few drops of penetrating oil to base of bulb and letting it penetrate between base and socket for a minute or two, so that bulb is freed for easy removal.—*K. Hadenfeldt, Storm Lake, Iowa.*

Hooks for Spotlight Cords



Spotlight cords, as well as other electrical appliance cords, are best kept in good condition, and their usefulness preserved, if they're not allowed to dangle or trail or get tangled and twisted. Illustrated here is one excellent method of keeping spotlight cords coiled neatly and off the floor when not in use, by attaching to the spotlight stands a couple of inexpensive, shower-curtain hooks over which the cords are coiled loosely.—*A. Siodmak, New York, N. Y.*

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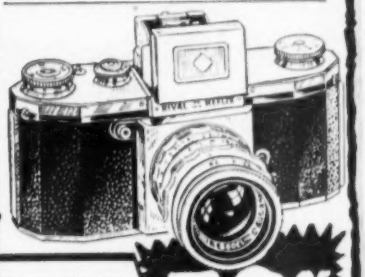

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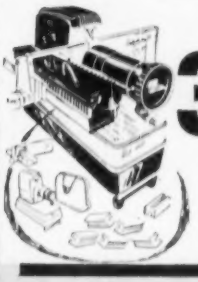

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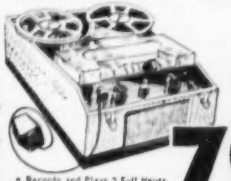

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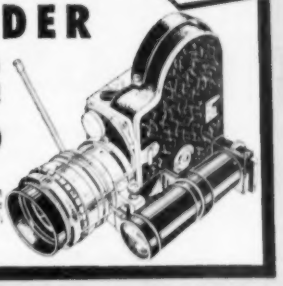

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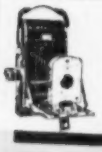

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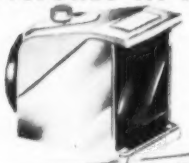

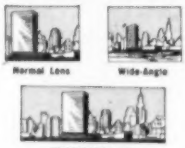

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8 ACCESSORIES

TO HELP YOU MAKE BETTER FILMS

Photographs by Allan Green

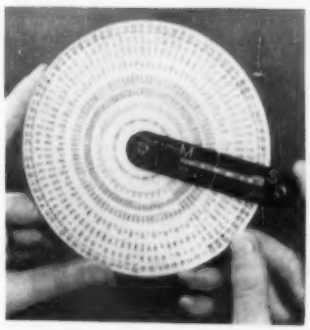
A shoulder pod will take the seesaw effect out of your hand-held films. It fits snugly against your shoulder, allowing use of your whole body as a steady support. At the head of the pod is a tripod screw which attaches to the camera. These pods are less conspicuous than tripods. They are much easier to carry and to use. This CECO Shoulder Pod sells for $11.25 at photo stores.

The Pistol Grip is another accessory which helps get steadier pictures. It fastens to the tripod socket of the camera, allows photographer to grip it like a gun. With the elbow of the gripping hand close to body, the whole body helps support the camera. Strap on handle helps tighten grip makes camera carrying easier. This grip, the Bell & Howell Pistol Grip, sells for $5.50.

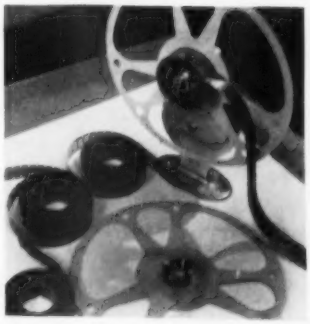
Thin white gloves are a must for a clean editing job. They help avoid scratches, finger prints, and other marring factors. They are made of cotton, and are thin enough to allow you to feel through them. Cheap enough so you can buy them by the dozen, they can be discarded after becoming soiled. It pays to handle still camera negatives with them. Price is $.20 a pair.

A Director's Viewfinder may be the device that will make you think twice before pressing the shutter release. A small, light unit, it allows you to study a scene thoroughly without having to move the camera from position to position. A "zoom" adjustment permits the photographer to change the field of view in the finder to match any lens. Price of unit, $15.50.

Craid Foto-Fade liquid is the answer to quick, easy fades in films made with simple cameras. By dipping in film at the splice point between two scenes, then gradually lifting the loop from the solution, a fade-out is achieved in the first scene, and fade-in occurs in next scene. Photographer should test effect on scrap film before working on good footage. Price is $1.25.



For 16-mm and 35-mm motion-picture makers, the Ready-Eddy is an accessory that will save much mathematical work. With a flip of the black guide rule you can find how many feet can be shot in a given number of seconds, how many frames in a given number of feet, etc. One side is devoted to 16-mm and the other to 35-mm. It is a must in professional work. Cost: $2.50.

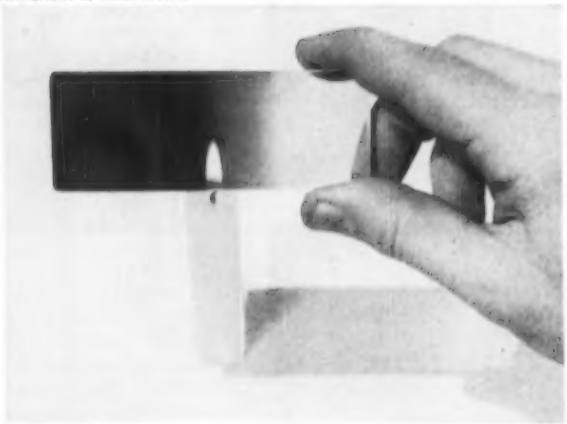


The Goldberg Screw-Apart reel will eliminate fuss with extra reels during the editing process. Film from individual scenes is wound on cores and a rubber band placed over the film. This helps keep footage safe as well as separate. When ready to splice, roll off film from the cores. This system avoids stringing film all about the editing room. Unit costs $4.50, cores $.10.

For an extra professional touch, and also for visual marking of scenes, a slate is a must. By carefully planning your footage, slate can be used as sort of title. Slate will tell when, and where scene was taken. Also by listing technical data, you can easily learn from your mistakes. Different types of slates, with different markings are available. This one, sells at a price of $1.95.

6 EASY

Photographs by Aller Studios



1 SIMPLE FADES

A piece of sheet glass and a candle can make a device that will put fades into your films simply and quickly. Coat the glass with gradations of carbon that come from the smoke of a burning candle. One end of the glass should be jet black, the other clear, with gradation of gray between. For a fade-in, place your camera on a tripod, hold your glass directly in front of it. Start camera running and then move the glass so that it will go from jet black to clear glass. For fade-out, move the glass from clear position to jet black.

2 VIGNETTES AND BORDERS

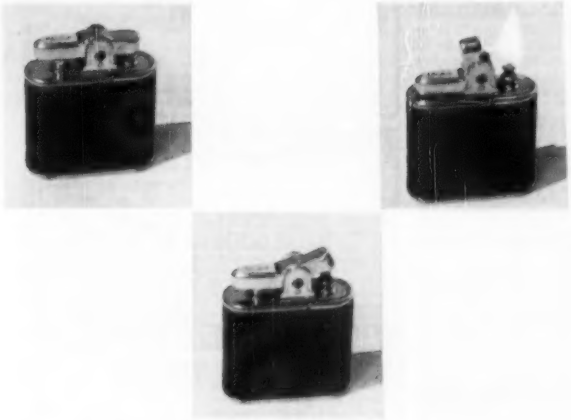
To get a border or pattern into your finished film all you have to do is follow some simple steps. First, cut the desired pattern—heart shape, binocular shape, etc.,—and place it on a stand. Set up your scene in front of the cutout. Then view the results, being careful that your viewfinder is centered directly behind the pattern. Once you are satisfied with your setup, place the lens in the same position that you placed the viewfinder. Other variations of this device can be thought up. For example, design a pattern with small doors in it, and open them while camera is running.

3 LETTER ANIMATION

By actually throwing letters onto a background you can get animation into titles. Here, the photographer tossed letters, one by one onto black background. Finished shot will look as if letters appeared from nowhere. Another method of handling titles is by attaching string to the letters. (String should be same color as background). With camera running you pull strings yanking letters from the shooting area. Another variation can be worked: place strips of paper over a title so all words are covered, then pull strips of paper off the picture area, revealing title.

SPECIAL EFFECTS

By ALLAN GREEN



4 STOP-MOTION TRICKS

The single-frame device on your camera shutter will allow you to make trick effects such as having a cigarette lighter light itself. First place your camera on a tripod, focus on your subject—in this case, the lighter. Then, expose several frames of the lighter in a stationary position. Next, insert a wedge (on the away-from-the-camera side of the lighter) so that the front element of the lighter is raised. Shoot a frame. Keep inserting wedges of increasing size, shooting a single frame each time. On the last shots light the lighter and expose. In finished film lighter will light itself.

5 MIRROR EFFECTS

Mirrors can give you many different effects. If the mirror shown in this picture were pulled slowly to the left, a wipe would be achieved. The face in the mirror would go off the screen, and the background would go on. One of the most startling effects that can be obtained with a mirror involves smashing the mirror. Station your mirror so you are shooting your subject reflected in it. Smash the mirror from behind at the end of your shot. (You also can make a scene seesaw or zoom by moving the mirror around in front of your camera.)

6 REVERSE ACTION

Reverse action is accomplished by turning your camera upside down and rewinding the processed film as soon as it comes back from the lab, before projecting. A person writing on a blackboard can be made to look as if he is taking the writing off the black board. Someone jumping off a diving board can be made to appear as if he were coming out of the water onto the board. Using the same upside down technique while shooting out of the back of a moving vehicle (at 8 frames per second) can give the impression that the vehicle is moving about 500 miles an hour.

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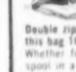

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FAMOUS MAKE — FOR COLOR and FOR BLACK and WHITE! PHOTO ELECTRIC EXP. METER

- Sensational import from Germany! A $15 VALUE
- Sturdily constructed, with sensitive electric eye for maximum range!
- Settings from 1/1000 to 60 sec, f:1 to f:22, ASA 4 to 250.

$5.59 CASE INCL.

Most compact—3" x 3" x 1" and light 4 oz. Snap open protective cell cover, set desired shutter speed opposite pointer—and you are ready to read off correct opening for your film. One hand operation. One year guarantee by Spiratone and manufacturer. *Shp. Cost 10c*

TIME EXPOSURE & DELAYED ACTION NOW ADDED TO EVERY CAMERA

AUTOKNIPS II WAS $4.95 $2.95

This most popular of all self timers in conjunction with a cable release, adds to your camera a feature many a photographer has paid a small fortune for. 11 slow speeds from ½ a second to ten seconds! *Shp. Cost 10c*

CABLE RELEASES: 4" 25c 7" 35c 10" 45c 40" $1.25

KOILED FLASH CORD $1.98

- Now available for most shutters. *Sh. Chg. 10c*
- Patented coiled cord extends to 4 ft., yet coils up without effort to only 7".

So handy when you want to hold flash away from camera, place electronic flash closer to subject than camera! Available with standard polarized household type plug for Heiland, etc., and prong-type for Kalart to fit Compur, Prontor S, ASA (Kodak), Solenoid, Argus C3, C4, Realist, Praktiflex and Exakta synchronized terminals. *Name one, camera when ordering*

NEW KOILED CORDS: Rollei Lock, Nikon S-2, Canon, Bolsey Jubilee. $2.25

SYNCH YOUR OLD CAMERA

- Fully adjustable mechanical tripper, requires no installation, works through standard cable release socket of most old cameras. Has fitting for standard flash cord.
- Allows adjustment for flash bulbs and zero (X) delay for Strobe.

$2.49 PPD.

Tripper with famous make all metal flashgun (Flashgun only is $6.95 value, has bracket, accepts screw base bulbs, bayonet base adapter 39c) $4.95

Tripper with BC Fan Flash, with ejector, tester $6.95

Shipping Weight 2 lbs.

METAL SNAKE CHAIN $1.29

FOR EXAKTA, LEICA, RETINA, PONY AND OTHERS

Smoothly suspends camera at chest height for worry-free carrying without case! Elegant, practical, safe and luxurious at half the usual cost! Extra heavy Snake chain w safety-locks $1.98 *Shipping Charge 10c*

Exclusive Spiratone Values! LEATHER GADGET BAGS

Made by the foremost manufacturers in the field, and exclusively offered by us, through a special purchase, below or close to the usual wholesale prices. These bags are all brand new first class merchandise not to be confused with "seconds" or "closeouts" of inferior leather bags. *Shpg. Wt. of Gadget Bags: 3, 5, 6, and 6 lbs.*

The SP1 and SP2 bring within the reach of every photographer ample size leather gadget bags, with large outside pocket, adjustable shoulder strap, rich saddletan shade, solid brass hardware, and an adjustable inside partition.

SP1 measures 7x9¼x4¼" and is priced at half of list $4.89

SP2 measures 8½x10½x4" and stands comparison with $15.00 to $20.00 bags $6.89

SP5. A topgrain bag for the advanced amateur or professional, large enough for press cameras (10" x 12" x 5"), or for taking "both cameras" along. "Wraparound" zipper! If you couldn't afford that $30.00 bag, you won't pass up the SP5 at a 54% saving. $13.95

SP6X-PANDO, the Spiratone miracle genuine cowhide jumbo press bag that **G-R-O-W-S**, always making room for new equipment 10½" x 14" x 5". When X-PANDO zipper is closed, you can add a full 4" to the bottom width, an 80% increase if needed! $19.95

Nothing like it for less than double! 20 FT. REMOTE SHUTTER RELEASE

Gently acting through airpressure. Vinyl hose, chrome cylinder, valve and hose connector to fit virtually any camera.

$3.98 LEICA MODEL 25c EXTRA *Shipping Charge 25c*

$3 BRAND NEW $10. VALUE CAMERA CASE GOV'T SURPLUS

Sturdily made of leatherette-covered plywood, 14x9x4" with two snaplocks and carrying handle, felt lined to give added protection to your valuable equipment. This case is ideal for 35mm fans who value their camera, extra lenses, meter etc. Has one partition, and can be readily customfitted to your needs. *Shipping Weight 4 lbs.*

1956 MODEL ALL-METAL RANGEFINDER $2.95

Employs super-imposed image system for rapid, accurate focusing from 2 feet to infinity! All-metal construction, leather covering, modern styling. In feet and meters. FREE: PLASTIC STORAGE CASE *Shpg. Chg. 10c*

3 UNIT REFLECTOR OUTFIT $5.79

- Two aluminum 10" reflectors for #1 or #2 bulbs
- One bullet reflector for spot effects

All three complete with swivel joint, switch, socket, clamp and cord at a fraction of their usual cost. *Shipping Weight 2 lbs.*

SUGGESTION: 2 #2, 1 #1 photoflood bulbs 86c.

LUMITROL DIMMER HI-LO SWITCH

Allows for comfortable focusing and composing, without straining subject's eye, saves electricity, life of bulbs, a $6.00 value—only $2.49, if bought with $5.49 set (above) or $6.49 set (below).

PHOTOFLOOD STAND PLUS TWO REFLECTORS

- 3-section metal stand extends 6'4".
- Sturdy, braced legs with rubber tips.
- Stand telescopes compactly to only 2 feet.
- Positive locking at any desired height.

The ideal indoor lighting setup. 22" crossbar, can also be used to hold screen, backgrounds. Two spun aluminum 10" reflectors (for #1 or #2 photofloods), complete with sockets, switches, 6' cords, ball socket swivel joints, rubber jawed spring clamps. Can be used on cross bar or furniture. *Shipping Weights: Stand 4 lbs.; Reflectors 2 lbs.*

$11 VALUE $6.98 COMP. — Now with new SWIVEL CROSSBAR

SUGGESTION: 2 #2 photoflood bulbs	$ .66
Extra clamp on bullet with bulb (for semi-spot)	1.99
Extra photoflood stand with regular crossbar	3.49

SAVE 50% AND MORE! POLARIZING SCREENS AND FILTERS

w/o Pola Screen — w. Pola Screen

The most useful lens accessory made, equally suited for ALL color and b&w films. Eliminates reflections in scenery, water, show-windows, increases contrast between cloud and sky, the ONLY sky filter usable with Kodachrome, Anscochrome, Ektachrome. Polarizing Screens have double threaded rings to allow use of extra filter or closeup lens, handle for convenient adjustment of maximum polarizing effect. *Sh. Ch. 10c*

	Polariz. Filter	Polariz. W/O Viewer	Screen W Viewer
Ser. IV	1.49	3.75	—
Ser. V	1.49	3.75	5.49
Ser. VI	1.98	4.75	6.99
Ser. VII	2.79	5.75	7.99

SALE IN OPTICAL GLASS FILTERS

Filters are the tools of the photographer—yet, fine filters, made by the best known manufacturers in the country, need not be costly. Each filter is ring-mounted, and engraved as to type.

Ser. IV	$1.15
V	1.39
VI	1.59
VII	2.98

FREE on request: Famous Make Filter Compartment Case with purchase of 4 or more Ser. V, or Leather Filterbank with 6 or more Ser. VI deluxe filters (incl. polarizing) and closeup lenses. Cases cost regularly $3.50 (Ser. VI), $1.25 (Ser. V).

"About Filters, Closeup and Minus Lenses" is a booklet crammed with valuable info. Send 25c, or free on request with orders of $3.00 or more.

FOR B&W: Lt. and med. yellow, green, orange, haze, red and infra-red. FOR ANSCOCOLOR, ANSCOCHROME: 10, 11, 12, UV 15, 16, 17. GENERAL: Neutral Density 2X, 4X, 8X, 10X.

FOR KODACHROME & EKTACHROME: Haze, Skylight, 2A, 2B, 85B, Type A, Blue 80, 82A, 1D, 20, 81, 81A, B, C, D, EF, 80B. CLOSEUP: +1, +2, +3.

FOR THE NEW EKTACHROME: 85C, 82A, 82B, 82C. LENS SHADES: Ser. V $1.25, Ser. VI $1.50, Ser. VII $3.00

Shipping Charges 1 to 5 filters 10c, 6 or more 30c.

A MUST FOR PORTRAITS & LANDSCAPES! DUTO-type DIFFUSERS for all cameras

Now available in standard series sizes, to fit all filter holders! Every serious photographer wants to use these famous coated diffusion disks preferred by the world's foremost pictorial photographers for their salon shots. Ser. IV $1.54; Ser. V $1.94; Ser. VI $2.24; Ser. VII $3.34

SAVE $4.00 ON COMBINATION ★ RANGEFINDER ★ EXPOSURE METER ★ FLASHMETER

Here is one of the most ingenious combination of useful devices, equally handy in daylight, for flood or for flash, for stills and movies, yes for every camera! And, while our supply lasts, you save 66% too!

Shipping Charge 15c $1.99

SENSATIONAL OFFER: Range-O-Matic Rangefinder, Exposure and Flashmeter — only $1.25, if ordered at same time as pocket flash!

FAN-TYPE POCKET FLASH

Another history-making Spiratone value! A complete flashunit, 3½x1¼x1½", with shoe to fit any camera's accessory clip, or bracket, an efficient blade, 5" diameter fan reflector, and even such luxurious features as bulb ejector and push-button bulb-battery tester! Gun accepts standard penlite batteries, standard bayonet bulbs! For all German (Compur, Prontor) and Kodak synch shutters—for Exakta, Praktiflex, Argus C3, C4, Leica M3, Realist — add $1.00. $2.99

Same Gun, with condenser, for BC $3.99

BC Battery for BC gun, lasts year $1.00. Bracket, fits any camera $1.00. Tripper, to synch old cameras, works through cable release socket $2.49. *Ship. Chge. 15c*

TELEPHOTO & WIDEANGLE TURRET for 8mm BROWNIE

Only $29.95

Finally, a sensibly priced turret for the Kodak 8mm Brownie, complete with 2X coated telephoto and wideangle lenses, always ready to bring close up those distant subjects, to include the extra area in narrow spaces!

Price includes turret, both coated, color corrected telephoto and wideangle lenses, and finder—state, if you have f:2.7 or f:1.9 model!

2X TELEPHOTO or WIDEANGLE lens for Brownie, alone, without turret, each $9.95, set, with free finder $19.90 *Shipping Charge 60c*

CLOSEUPS ARE SIMPLE

and inexpensive, when you buy your closeup accessories from Spiratone, the only firm specialized in low-cost closeup photography equipment.

GOOSENECK LIGHT ATTACHMENT $5.95

With C clamps, fits copy stand or enlarger pole. 2 bullet reflectors, $1.69 addl. *Sh. Wt. 4 lbs.*

DELUXE COPYING STAND

Designed by us for use in conjunction with closeup lenses, extension tubes, bellows attachments, to complete with a moderate investment, your closeup and copying equipment. Strong enough for a 4x5 yet compact in storage (two-piece post) and equally well suited for copying, medical, scientific work and movie titling. Camera bracket permits centering of camera over subject. 15x18" baseboard is very practical for large originals. 1½" diameter pole is 38" high. *Shipping Weight 11 lbs.*

$9.95

FREE with orders over $3.00, or send 25c for CLOSE UP DICTIONARY...Contains all needed tables, too.

EXTREME CLOSEUP LENSES

can be used with any camera—with the greatest of ease and with no extra accessories. You can get as close as 8" with a Plus 4, 7" with a Plus 5, 5½" with a Plus 6, 3½" with a Plus 10. You can use two extreme closeup lenses, with a double retaining ring, for even more extreme closeups. With a Plus 5 lens, you can fill the complete 35mm frame when reproducing a postcard; a Plus 10 lens is just right for insects, stamps and coins. Extreme Closeup lenses make macrophotography possible with a tiny investment. All exc. Plus 10, mounted in metal rings.

	Ser. V	Ser. VI	Ser. VII
Plus 4	1.75	2.00	3.25
Plus 5	1.95	2.30	3.75
Plus 6	2.25	2.75	4.25
Plus 10	2.65	3.25	5.25
Dbl. Ret. Ring	.85	.95	1.50

CLOSEUP (Portrait) LENSES

bring within every photographer's reach subjects which would be too small if photographed at the regular 3 ft. closest camera setting. Head and shoulder portraits, children's pictures, copy work—a whole new field of picture taking. All Closeup Lenses are mounted in metal rings. Deluxe lenses, made by nationally famous manufacturer, have diopter power engraved on rings.

	Reg.	Deluxe
Ser. IV		1.15
Ser. V	1.00	1.39
Ser. VI	1.25	1.59
Ser. VII	2.00	2.98

Plus 1 focuses from 38" to 20", Plus 2 from 20" to 13", Plus 3 from 13" to 10"—for versatility, you will want set of all three Closeup Lenses. *Shpg. Chgs. 1-3—10c.*

6-PC. EXTENSION TUBE SET

for Kine Exakta, Exa. This set contains two precision-fitted brass adapters and four tubes, 5mm, 15mm, 30mm and 45mm, providing the greatest possible range of closeup work from a 3.4 reduction to a 2.2 magnification ratio. *Shipping Charge 35c.* Same set but with one FOCUSING TUBE from 40mm to 55mm, alone a $10 value. Complete set $11.50. Economy 5 pc. set, 3 tubes, 2 adapters $4.98.

$7.95

4-PC. EXTENSION TUBE SET

for Praktica, Praktiflex FX, Contax, S, D, DA, Pentacon

This exceptionally well-made set includes in addition to the usual 5mm, 15mm and 30mm tubes a 45mm tube, thus permitting up to 2X magnification, when the complete set is used; a tiny object, ½" x ¾" can be made to fill the entire 35mm negative or transparency! *Shipping Charge 35c.* Same set, but with one FOCUSING TUBE, alone a $10.00 value, increasing maximum extension to 100mm. Economy 3-pc. set $3.98

$6.95

$9.95

LEICA, CANON 4 PC. EXT. TUBE SET, INCL. ONE FOCUSING TUBE, $16. VALUE $10.75

PROXISCOPE SR.

WITH ELEVATING ACTION $4.95

An absolute must for any kind of closeup and copy work. Doubles up as perfect elevating attachment with both tripod and camera fittings for horizontal as well as vertical fastening of camera.

- A deluxe version of the most useful camera accessory for every practical photographer.
- Permits minute adjustments in a 4½" range on its geared track, with a positive lock at any desired point.

Shpg. Chg. 35c

FOLDING BELLOWSCOPE

$14.95 ppd.

Available for Leica, Canon, Kine Exakta, Exa, Praktica, Praktiflex FX, Contax S, D, DA, Pentacon.

Now also for Nikon, Contax I (Ia), I (Ib). The most useful of lens-to-camera closeup accessories. It weighs only 5 oz., has fine leather bellows and a geared track with a positive lock. A sturdy accurate frame assures proper alignment. An extension range up to 5" is provided, with exposure factors engraved on the track. *Shpg. Chgs. 35c.*

FREE with FOLDING BELLOWSCOPE PROXISCOPE JR. a $4.00 value.

GROUNDGLASS FOCUSER

for virtually ALL 35mm Cameras

Here is one of the most useful accessories ever made for owners of Argus, Contax, Canon, Vitessa, Contessa, Edixa, Retina, Signet—just about all 35mm cameras with removable backs! Focuser fits snugly into film plane, instantly showing exact, parallax-free image you will record on film! Wonderful for checking rangefinder and viewfinder accuracy, determining composition and depth of field, focusing and composing for closeups! Precision-made with ballbearing fittings, the Focuser is instantly removable, too!

$4.95 ppd.

COMBI. OFFER for ARGUS C3 only: Focuser and 3 ext. tubes 7.95

Spiratone AUX. TELEPHOTO and WIDEANGLE LENSES

SPIRATONE LENSES OFFER THESE EXTRAS:

- Built-in or Separate Filterholder furnished for each (set of) lens(es)
- Interchangeability of standard adapters, so that one lens may often be used with several cameras (each lens is supplied with only one adapter—extra adapters are $1.25 each, when suited).
- Extra hard S-coating.
- Excellent color-correction.
- Lifetime Service Guarantee.
- No change in exposure or lens opening needed.
- Comprehensive instructions for simple use—lenses fit your camera like filterholders, require no installation.
- Availability of filters — your free choice of any TWO with every aux. lens you buy, selected from these: yellow, orange, green, haze, red, blue. Others $1.00 each.
- Finders fit accessory clip, can also be used handheld.

FOR COLOR — FOR BLACK AND WHITE

By far the most popular accessory for the 35mm camera owner! Spiratone lenses add to the camera the advantages of telephoto effects for improved perspective in portraits, for moderate-distance shots so that the important subject matter will fill the entire negative or slide, and of wideangle effects for landscapes, and indoors where space is limited, of greater depth of field.

UNIVERSAL AND CLOSEUP (+1, +2, +3) FINDER

the most versatile finder ever made, matched to your normal 50mm or 44mm lens, telephoto and wideangle Aux. Lenses. Has parallax correction to 10'. For use with +1, +2, +3 closeup Lenses and from three feet to infinity. $9.95

Each lens in leather case (incl. 2 filters) *Shpg. Chg. 35c* $16.95

Set of both lenses, in double leather case (including 4 filters) *Shipping Charge 60c* $29.95

Each Finder, telephoto or wide-angle both for $7.49 $3.95

Accessory Clip for Argus C3, easily installed $1.00

Accessory clip, easily glued to most cameras 75c

GREAT NEWS

Spiratone aux. telephoto and wideangle lenses, greatly improved, are now available at the same low prices for 2¼ x 2¼ Twinlens Reflex Cameras—Rolleicord and Rolleiflex bayonet mount (f:3.5 only), Croflex, Graflex 22, Ricoflex, Kodak Reflex. For twinlens users seeking a moderate increase or decrease in focus length, Spiratone aux lenses add greatly to the versatility of their camera.

SPIRATONE AUXILIARY LENSES ARE AVAILABLE FOR THESE 35MM CAMERAS AND MANY OTHERS

ARGUS C3, C4, BANTAM, BOLSEY, CONTAFLEX, CONTESSA, EDINEX, EDIXA, KODAK 35, MERCURY, RETINA, SIGNET, VITO

Save on fresh 35MM ADOX FILM

Your choice of KB14, KB17, KB21 *Shipping Charge 10c*

20 exposure roll 65c — 3 or more (may be assorted) 55c each

36 exposure roll 95c — 3 or more (may be assorted) 85c each

Anyone Can Use Infrared Film! 35mm INFRARED FILM, IR BULBS

This film is really a challenge to the imaginative photographer. It penetrates distant haze, takes "moonlight" scenes in broad daylight, creates unusual contrast effects. Shpg. Chgs. 1.35x5.10.20c. Use orange or red filter. For extreme results, use special INFRARED FILTER: Ser. V $1.39, Ser. VI $1.59, Ser. VII $2.98. *Kodak Data Book on Infrared 35c.* For Blackout (invisible) flash photography use INFRARED FLASHBULBS, SR. Each 20c. 12 for $2.25. 4x5 KODAK INFRARED CUT FILMS—25 for $1.00; 100 for $2.50.

20 exp. roll, 50c—5 for $2.00 — 27½ ft., $1.79—50 ft. $2.79

36 exp. roll, 80c—3 for $2.00 — 100 ft., $4.79—200 ft., $7.79

35mm IR TRIAL PACKAGE 3, 20 exp. IR films, IR Filter (specify Ser. V or VII), 8 IR bulbs, brochure "ABC of IR Photography" all for $4.89 ppd.

2x2" CARDBOARD MOUNTS

1¢ EA in lots of 1m

Sturdy cardboard mounts, ready to use without special equipment, for standard size (Leica, Argus) 35mm transparencies. Fit all projectors and slidechangers. *Sh. Wt. 2 oz. 6 lbs.*

Trial Package of 100 $1.50 ppd.; 500 for $6.29; 1,000 for $10.

HI-SPEED COLOR

TRIAL PACKAGE $7.39 PPD.

Try the sensational new Anscochrome with special processing at ASA 32, ASA 64 and even ASA 128! Only Spiratone offers you this fine film, INCLUDING expert processing at all three speeds! Package consists of three 20 exposure Daylight reloads, each to be shot at a different speed, with complete simple instructions!

FREE with Hi-Speed Package: 20 exp. Ansco-Color Tungsten reload!

2x2 ALL METAL SLIDE FILE $1.79

2 for 3.49 — 4 for 6.79

Accommodates 300 redimounts or 150 glass slides. Slots prevent rattling. Index Clamp lock and handle. *Shipping Weight 3½ lbs. each.*

SEQUENCE MODEL, holds 300 glass or 600 redimounts in groups, with metal dividers—same low prices!

MINUS LENSES for TELEPHOTO EFFECTS

If you have a camera using, or capable of using a bellows or extension tube set, you will want to invest in Minus Lenses for the thrill of taking telephoto shots without buying a regular telephoto lens, or extreme telephoto shots, in conjunction with your telephoto lens, for example, a single Minus 4 lens makes your 135mm telephoto into a 270mm telephoto—varied combinations will produce a variety of effects. Minus Lenses improve the perspective in portraits, too, by lengthening the effective focus length. Minus Lenses are mounted in Metal Rings and are sold in sets of three (at your selection) or four. Available in Minus 1, 2, 3, and 4. *Shipping Charge 10c.*

Thousands of Exakta, Praktica, Contax S and Leica, Canon owners with reflex housings find Minus Lenses most useful accessories.

	PER 3	PER 4
SER. V	—$3.60	—$4.70
SER. VI	—$4.35	—$5.65
SER. VII	—$6.00	—$7.80

ACCURA REFLEX HOUSING for LEICA, CANON $39.95

Shpg. Chg. $1.00

READY TO USE—WITH DUAL RELEASE SYSTEM

Never before could so small an investment change your Leica, Canon into a single lens reflex camera, ideal for parallax-free closeup, telephoto, medical and scientific work! Focus with formerly impossible fraction-of-inch accuracy through adjustable magnifier on bright, curved groundglass, press release, mirror jumps up, exposure is made of exact image you saw! Use with extension tubes or bellows for closeups, with special 135mm tele lens for complete closeup to infinity range.

SAVE MORE STILL BY BUYING COMBINATIONS

REFLEX HOUSING +

- + Folding Bellowscope $49.95
- + Special ctd. 135mm f:3.8 SUN tele 69.95
- + Folding Bellowscope and special ctd. 135mm f:4.5 telephoto 73.95

FREE with any combination offer above: New Eyelevel Mirror device, a $14.00 value.

SYNCH YOUR OLD LEICA, CANON FOR FLASH OR STROBE $3.49 PPD.

No installation—just one quick adjustment over release button and you are all set for flash shots at speeds to 1/30th. Trigger accepts standard flashcord—or buy from us with flashgun to fit accessory clip.

Famous GEISS KONTAKT, synchronizes Leica IIIA, IIIC, cameras even at high speeds, was $19.95 $6.95

Imported Economy Gun w. tripper $6.49; w. Geiss $9.75

Fan-type BC Pocket Flash w. tripper $8.39; w. Geiss $11.79

Shipping Chg. 35c

While They Last — Brand New!

135MM f:3.8 TELE for LEICA, CANON $39.95

Guaranteed the sharpest lens you can buy—regardless of price! Rangefinder-coupled, elegant lightweight mount, depth of field scale—at an unbelievable saving!

Shipping Charge 25c

Deluxe Leather Case $3.00. Matching 135mm Finder $6.95

1½" F:1.8 ULTRASPEED TELE for 8mm $75.00

Never before could the 8mm movie fan get so fine and so fast a 3X Telephoto at so low a price. Coated, color-corrected, in focusing mount, with clickstops, filterholder—to fit virtually all 8mm cameras (state make, model when ordering). COMBI: 1½" F:1.8 TELE + 6mm F:1.9 WIDE ANGLE both for $40. *Ship. Chgs. per lens, 35c*

NEW 1956 MODEL — ALL-METAL PORTABLE

Action EDITOR for 8mm $23.95

$26.95 for 16mm

SAVE 40%

Streamlined and most modern editor provides large, bright 2" x 3" projected image in full motion. All-steel automatic splicer has built-in scraper. Fold-away rewind arms make for extreme compactness. Deluxe Model, with exclusive focusing and framing controls, and luxurious carrying and storage case, only 13" x 12" x 8". *Shpg. Wt. 10 lbs.*

FREE with Portable Editor: 100 ft movie feature — Value $2.75

8MM MODEL Reg. $45 $28.95 — 16MM MODEL Reg. $50 $31.95

15MM f:1.9 BERTHIOT WIDEANGLE for 16MM $18.95

Is Standard C Mount—Focusing 1 Ft. (30cm) to Inf.

Made by France's largest lens manufacturer, this fine color-corrected lens covers a 43 degree angle (normal lens covers 22 degrees), would normally sell for four or five times our price! Needless to say—the quantity is limited.

15mm f:1.9 + 3 f:1.9 F.M. Telephoto $49.95

Matching Finder (Objectives for B&H ea. $4.95

Shipping Charge 15c

BRAND NEW COATED ULTRA-SPEED 16mm f:1.5 normal foc. mt $29.95 PLUS YOUR LENS

Modernize your 16mm C-mount Revere, Keystone, Bolex, Paillard, B&H camera by trading your old, slow 3.5, 2.5 or 1.9 lens towards this ultra-fast 1956 model, color corrected f 1.5 lens, with clickstops, depth-of-field scale, filterholder—you'd have had to pay up to $60.00 more for such a lens, had you bought it with your camera!

OTHER F:1.5 LENSES IN FOCUSING MOUNTS: 15mm f:1.5 Telephoto, reg. $89.95 $59.95; 15mm f:1.5 Wideangle, reg. $79.95 $49.95

Shipping Charge 50c

All prices include excise tax. Postage and insurance MUST be prepaid, even when no shipping weight is stated — overpayment will be credited in full. Everything listed is brand-new (unless otherwise stated) and fully guaranteed against defects. 25% deposit on C.O.D.'s. Items marked 'Free', 'Premium' or 'Bonus' MUST be requested at time of purchase. Foreign orders welcome — slight extra handling charges apply.

SPIRATONE INC.

49 WEST 27th ST., NEW YORK 1, N. Y.

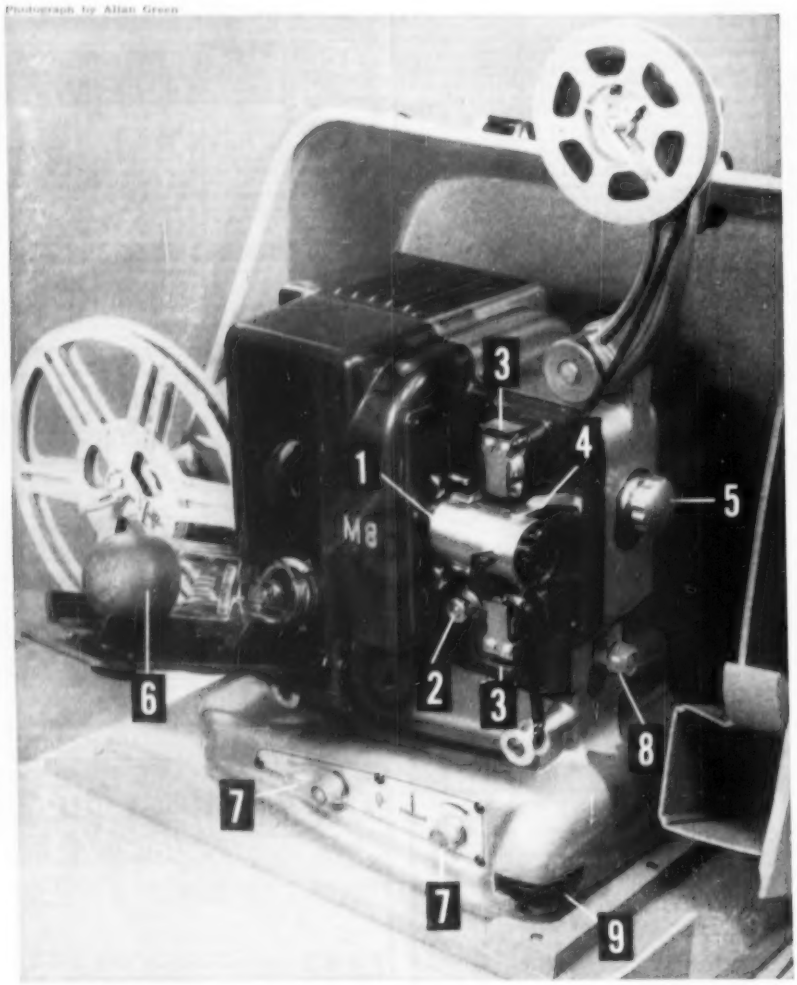
SEND MAIL ORDERS TO: 135-06 NORTHERN BLVD., DEPT. P3, FLUSHING 54, N. Y.

NEW BOLEX M-8 PROJECTOR

High-speed rewind, fold-out lamp housing, and improved optical system are features of the Paillard 8-mm movie projector

By HARVEY SHAMAN

Photograph by Allan Green



PAILLARD LTD. of Switzerland is producing a redesigned model of its Bolex M-8 motion-picture projector. The new machine combines some of the characteristics of the earlier model with several new features. The features are:

1 Optical system. (Numbers refer to picture.) Completely redesigned for maximum light transmission and incorporating a catathermic heat screen between the lamp and the film to reduce heat transmission and help eliminate the danger of the film being burned.

2 Automatic loop former. This maintains a bottom loop. Even if the film or sprocket holes are torn the mechanism is sensitive enough to run film that has been temporarily spliced with scotch tape. Old and brittle films can be run through this machine without breaking them or stalling the machine.

3 Sprocket guides. Snap catches on the guides permit rapid loading without threading.

4 Film gate. The gate and lens can be swung open while the projector is running, giving over an inch clearance for cleaning or adjustment.

5 Rewind. Machine will rewind up to 400 feet of film in 15 seconds. Button is pressed after threading film for rewind.

6 Lamp replacement. The 500-watt lamp swings completely clear of the housing on a hinged door, making it easy to replace burned-out lamps.

7 Main operating controls. They are located on the right side for easy accessibility. Lamp and motor are operated from the same switch, making it impossible to turn on the light unless the motor is running. A second knob controls the frames per second.

8 Framing. It is adjusted by a knob on the front of the projector which shifts the position of the claw (the small lever in the body of the projector which moves the film) rather than the film gate, as is common in most projectors. This permits the optical system to remain in alignment at all times, assuring maximum image brilliance and no illumination drop-off at the top or bottom of the frame. The claw mechanism itself has been redesigned for extremely high-speed operation, so as to give a steadier screen image.

9 Height adjustment. Two screws on the front corners of the projector body raise or tilt the camera, depending on the correction that is necessary.

One of the operating characteristics of the New M-8 is the frames-per-second adjustment which permits operation from as low as eight fps to as high as approximately 28 fps. This makes the M-8 acceptable for use with magnetic sound adapters, which must operate from 24 to 25 fps to give good sound reproduction.

Built into this mechanism is an audible indicator which tells the operator when the projector is operating too slowly for smooth picture action on the screen. It goes into operation at about 12 fps, making an alternating speed-up and slow-down sound which means the machine is operating too slowly for good viewing, and is in danger of heating up.

The motor is geared directly to both the take-up reel and the large fan in the lamp housing. This makes for quiet operation and efficient cooling.

The upper spool arm folds into a carrying handle when the projector is not in use, and the film spindles on both this arm and the take-up reel have positive locks, so it is impossible for them to slip open when the projector is operating.

The M-8 is all metal, has a two-tone metallic gray finish and red control knobs for color contrast. It comes in two models, the M-8 ($169.50) for operation on voltages from 110 to 125, and the M-8R ($199.50) which is aimed for use in homes supplied voltages from 110 to 250.

It is supplied with a standard 25-mm *f*/1.5 Kern-Paillard lens, a hand crank for rewinding short reels of film manually, and a carrying case which opens flat for quick accessibility.

Accessories available are two lenses, the *f*/1.6 and 33mm *f*/1.6 Kern-Paillard lenses ($25 each) and a stroboscopic disk at $3.50 for setting the operating speed at either 16 or 20 fps.—

New Elgeet Cine-Turret for 8-mm Cameras

The Elgeet Cine-Turret attachment ($39.50) is designed to convert most single-lens 8-mm motion-picture cameras into turret-type cameras. The unit consists of two supplementary lenses—one for telephoto, and other for wide-angle work—which fit over a normal lens.

Adapters for fitting the attachment to any 8-mm camera are supplied by the manufacturers of the lens, Elgeet Optical Company, Rochester, N. Y.

Once the adapter has been placed over the normal lens of a camera, the unit is easily attached and ready to use.

Now, lets go over the Cine-Turret point by point:

Field of view: An attachment to fit viewfinders is supplied by Elgeet. With it over the finder, the field of view of the attachment in use can be determined.

Angle of view: With the standard 13-mm lens on the camera, the telephoto attachment will magnify a scene 2½ times and the wide-angle lens will give four times the coverage of the normal lens. The telephoto attachment converts a 13-mm normal lens into a 32-mm lens. The wide-angle unit changes the same normal lens into a 6.5-mm lens.

Aperture settings: The photographer sets his aperture as he normally would on his camera when the attachments are in use. No compensation in exposure is necessary.

Switching lenses: When the attachments are resting in their own cones, the normal lens is in position to be used normally. With a flick of the wrist, either the telephoto or wide-angle lens can be switched into position.

Handling: The unit is made of lightweight material and adds very little weight to the camera, therefore it does not create hardships in handling.

With this new attachment on a single-lens camera the photographer has increased the camera's potential. From a single position he has three different picture possibilities because of the attachment alone. These possibilities multiplied by varying points of view increase the chances of making better home movies.—

The Cine-Turret shown below increases the versatility of single-lens 8-mm movie cameras.

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in natural light...

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In Mount for Leica, Leica M-3, Contax	$450.00
Leica IIIf with 50mm Zunow f1.1	489.50
Leica M3 with 50mm Zunow f1.1	594.50
Contax IIA with 50mm Zunow f1.1	489.50
Contax IIIA with 50mm Zunow f1.1	539.50
Nikon S-2 with 50mm Zunow f1.1	495.00
Canon with 50mm Zunow f1.1	485.00

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Exakta VX with 50mm f2.8	164.50
Exakta VX with 50mm f1.8 Automatic Xenon	259.50
Praktica Camera Body	42.50
Praktica FX with 50mm f2.8 Carl Zeiss Tessar	63.50
Praktica FX with 58mm f2 Carl Zeiss Biotar P.S.	99.50
Praktica FX with 50mm f2.8 Automatic Westenar	184.50
Praktica FX with 50mm f2 Automatic Westagon	119.50
Praktica FX with 50mm f1.9 Automatic Xenon	182.50
Contax D Body	84.50
Contax D with 58mm f2 Carl Zeiss Biotar P.S.	122.00
Contax D with 50mm f2.8 Carl Zeiss Tessar	97.00
ConSol Camera Body	105.00
ConSol with 58mm f2 Carl Zeiss Biotar P.S.	144.50
Pentacon Camera Body	89.50
Alpa 7 with 50mm f3.5	309.00
Alpa 7 with 50mm f1.9	399.00
Rectaflex with 50mm f2 Schneider Xenon	189.50

All Lenses Latest Models. Coated. We are not permitted to advertise their famous names. Manufactured in Germany, Italy, France, and Japan. Complete information is available upon request. When ordering, please specify with which camera the lenses will be used.

28mm f3.5	$ 88.95	135mm f3.8	35.00
35mm f2.5	74.65	135mm f4.5	29.95
35mm f4.5	48.35	135mm f2.5	134.65
38mm f5.7	26.25	150mm f3.5	59.95
40mm f4.5	37.50	150mm f2.8	205.25
40mm f3.5	37.50	150mm f1.5	60.00
50mm f2	52.15	150mm f1.8	256.75
58mm f2.8	53.50	165mm f3.5	146.25
50mm f1.9	119.65	180mm f4.5	72.00
50mm f1.5	123.50	180mm f1.5	59.95
50mm f3.5	35.00	180mm f2.8	229.50
55mm f1.9	119.50	180mm f3.5	146.25
56mm f2	79.50	200mm f2.3	63.75
75mm f1.5	119.95	240mm f5.5	93.75
75mm f1.9	119.95	250mm f5.6	93.75
80mm f2	74.50	300mm f4	329.50
80mm f2.8	66.50	350mm f5.5	104.95
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85mm f2	66.00	400mm f3.5	270.00
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90mm f4	24.95	400mm f4.5	270.00
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90mm f3.5	68.50	400mm f5.5	149.65
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100mm f2.8	48.00	500mm f5	337.50
102mm f4.5	99.25	500mm f8	396.00
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Nikon	189.50
Contax IIIA	237.00

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50mm f1.5	99.50	300mm f4	346.25
50mm f2.8	59.50	300mm f5.6	112.45
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85mm f4	79.50	500mm f8	626.25
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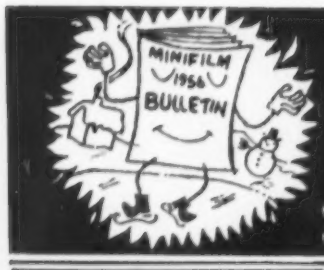

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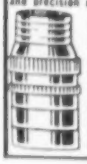

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28mm f6.3 Hektor¢		62.00	40.00
28mm f3.5 Nikkor¢	149.50	77.50	68.00
35mm f2.8 Biometer		104.50	70.00
35mm f3.5 Elmar		36.00	25.00
35mm f3.5 Nikkor¢	89.50	52.50	40.00
35mm f2.5 Nikkor	139.50	94.50	70.00
35mm f2.8 Serenar¢	110.00	76.50	50.00
35mm f3.5 Summarong	96.00	54.50	40.00
50mm f1.4 Nikkor¢	169.50	91.50	70.00
50mm f2 Sonnar	146.00	74.50	50.00
50mm f2 Summitar	78.00	59.50	40.00
50mm f1.5 Summar¢	177.00	107.00	80.00
73mm f1.9 Hektor		67.00	50.00
85mm f1.5 Serenar¢	238.00	134.00	100.00
85mm f2 Sonnar¢	229.00	78.00	60.00
90mm f4 Elmar¢	90.00	54.50	40.00
100mm f3.5 Canon¢	115.00	72.00	55.00
125mm f2.5 Hektor¢	147.00	93.50	70.00
135mm f3.5 Canon¢	130.00	79.50	65.00
135mm f4.5 Hektor¢	135.00	82.50	70.00
135mm f3.5 Nikkor¢	135.00	67.00	50.00
135mm f4 Serenar¢	108.00	66.50	45.00
200mm f4.5 Telyt¢	156.00	102.00	75.00
400mm f5.6 Novoflex	189.50	...	85.00
800mm f8 Canon w/Reflex Hous	585.00	329.00	275.00

Lenses for EXAKTA, CONTAX D, PRAKTICA, PENTACON

	New	Used	Trade-in
35mm f2.5 Angenieux	$ 99.50	$ 54.50	$ 40.00
40mm f3.5 Makro Kilar	89.95	56.00	40.00
40mm f4.5 Tessar¢	75.00	36.00	25.00
50mm f1.5 Angenieux	165.00	105.00	85.00
50mm f2.8 Tessar PS	65.00	34.00	20.00
50mm f2.8 Westanar	69.50	41.50	30.00
58mm f2 Biotar PS	125.00	61.50	40.00
58mm f1.9 Primoplang		42.00	30.00
75mm f1.5 Biotar¢	216.50	91.50	70.00
85mm f2.8 Steinheil¢	65.00	39.50	30.00
90mm f1.8 Angenieux	149.50	93.50	75.00
135mm f4.5 Steinheil¢	60.00	34.50	22.00
135mm f3.8 Sung	29.50	20.50	15.00
135mm f3.5 Colinar PS	39.50	27.50	20.00
135mm f4.5 Xenar¢	84.95	47.00	30.00
135mm f4 Trioteg	75.00	41.50	30.00
180mm f2.8 Sonnar PS		235.00	150.00
240mm f5.5 Xenar¢	124.95	75.50	55.00
400mm f5.6 Novoflex¢	189.50	114.00	85.00
400mm f5.5 Megor PS	199.50	129.50	95.00

ACCESSORIES FOR IMPORTED CAMERAS

	New	Used	Trade-in
Leitz Focaslide	$ 36.00	$ 21.50	$ 15.00
Leitz Imarect Finder	39.00	22.50	16.00
Leitz B.C. Flashgun	24.00	15.50	10.00
Zeiss Revolv. Finder	80.00	39.50	30.00
Rolleikin Back	35.78	21.00	15.00
Rollei B.C. Gun	22.95	12.75	8.00
Univ. Image Erect. Fdr.	24.50	15.00	10.00
Micro tbso Attach.	108.00	77.00	60.00
Novoflex, Bellows for Leica, Contax	34.50	22.50	15.00
Novoflex for Exakta, Pentacon, etc.	34.50	22.50	15.00
Novoflex Reflex Housing for Leica-Contax	99.50	59.00	50.00
Novoflex tripod and Stereo Rackover	18.50	12.00	9.00
Panoramic attach.	11.50	7.00	4.00

LEICA CONTAX NIKON CANON

	New	Used	Trade-in
Contax I f2.8 Tessar		$ 39.50	$ 25.00
Contax III f2 Sonnar		97.00	75.00
Contax IIA f2 Sonnar*	345.00	134.50	115.00
Contax IIIA f1.5 Sonnar*	412.00	176.50	150.00
Leica IIIA f2 Summar		76.50	55.00
Leica IIIC f2 Summitar¢		96.00	80.00
Leica IIIF f2 Summitar¢	268.50	143.50	120.00
Leica IIIF f2 Summicron	336.00	167.00	145.00
Leica IIIF f1.5 Summarit	357.00	177.50	150.00
Leica M3 f1.5 Summarit¢	468.00	...	230.00
Nikon S f1.4 Nikkor¢*	...	157.50	115.00
Nikon S2 f1.4 Nikkor¢*	345.00	219.00	175.00

35MM SINGLE LENS REFLEX

	New	Used	Trade-in
Exa f2.8 Westar MXg	$ 85.00	$ 39.50	$ 30.00
Kine Exakta f3.5 Tessar*		67.50	45.00
Exakta VX f2 Westagon Auto	279.50	167.00	140.00
Exakta VX f1.9 Xenon Auto	341.70	187.50	150.00
Contaflex f2.8 Tessar	169.00	78.00	65.00
Contax D f2 Biotar P.S.		87.00	70.00
Praktiflex f2 Biotar¢		66.50	45.00

35MM CAMERAS

	New	Used	Trade-in
Agfa Karat f2.8 RF		$ 27.50	$ 20.00
Argus A 4 f3.5¢*	32.50	20.50	15.00
Argus C2 f3.5 RF		17.50	12.00
Argus 21 f3.5¢*	59.50	27.00	20.00
Argus C3 f3.5 outfit	66.50	31.95	25.00
Argus C4 f2.8 RF MX	84.50	39.50	32.00
Super Bald. f2.8 RF MXg	69.50	42.50	30.00
B&H Foton f2 RF MX	498.00	263.00	200.00
Bolsey B f3.2 RFg	49.50	17.00	12.00
Bolsey B22 f3.2 RFg*	69.50	32.75	25.00
Bolsey C22 f3.2 RFg*	99.50	41.00	35.00
Contessa f2.8 RF meter		69.50	55.00
Contina II f2.8 RF	110.00	64.00	50.00
Futura P f2.8 RFg	129.50	47.50	35.00
Graphic 35 f3.5 outfit	89.50	52.00	45.00
Kodak Bantam f3.9 RF	56.75	37.00	25.00
Kod Pony 828 f4.5 C*	29.50	14.50	10.00
Lordomat f2.8 RFg	89.50	59.50	45.00
Retina IIIC f2 RF	190.00	112.00	85.00
Retina IIA f2 Xenon		68.00	55.00
Kodak Signet f3.5	75.00	38.00	32.00
Minox IIIS outfit	139.50	76.50	55.00
Mercury II f2.7g*	41.50	17.50	10.00
Robot Royal f1.9 Xenon	295.00	134.50	115.00
Robot II f2 Biotar		47.00	25.00
Robot Star f1.9 Xenon	99.50	73.00	55.00
Voigt Prominent f2	220.00	123.50	90.00
Voigt Prominent f1.5	270.00	137.50	100.00
Voigt Vitessa f2 RF	.....	81.00	55.00
Voigt Vito II f3.5g*	.....	21.50	15.00

35MM STEREO CAMERAS

	New	Used	Trade-in
Kodak f3.5g*	$ 84.50	$ 45.50	$ 30.00
Realist 45 f3.5	88.50	54.50	40.00
Revere f3.5 RFg*	174.50	71.50	60.00
Stereo Realist f3.5 RF	159.00	62.50	55.00
Stereo Realist f2.8 RF	198.50	105.00	90.00

2¼x2¼ REFLEX CAMERAS

	New	Used	Trade-in
Ansco Reflex f3.5g	$189.25	$ 74.50	$ 55.00
Ciroflex B f3.5g		24.00	15.00
Ciroflex D f3.5g	75.00	32.00	20.00
Ciroflex E f3.5, 400g*	99.50	39.00	30.00
Exakta 66 f2.8 Tessar	319.50	177.50	150.00
Graflex 22 f3.5 C*	74.50	42.50	35.00
Hasselblad/1000 f2.8	379.50	196.00	165.00
Ikoflex IIA Auto f3.5	126.00	71.50	55.00
Ricohflex VI f3.5g*	29.95	17.25	12.00
Rolleicord III f3.5 Xenar		57.50	45.00
Rolleicord V f3.5 Xenar	134.55	85.50	65.00
Auto Rollei f3.5 Tesar		85.00	60.00
Rollei Sync f3.5 Tessar¢*		105.00	80.00
Rollei MX f3.5 Xenar	217.50	113.00	100.00
Rollei MX f3.5 Tessar	232.50	121.50	105.00
Rollei MX f2.8 Xenctar	291.50	172.00	140.00

ROLL FILM CAMERAS

	New	Used	Trade-in
Kodak Chevron f3.5 RF	$198.50	$117.50	$ 80.00
Medalist I f3.5 Ektar		52.00	40.00
Polaroid Highlander	69.95	37.50	30.00
Polaroid Land¢*	89.75	36.00	30.00
Polaroid Pathfinder f4.5	245.50	143.50	110.00
Super Ikonta BX f2.8 RF	163.00	67.00	60.00

PRESS CAMERAS

	New	Used	Trade-in
45 Ann. Graphic RF f4.7		$ 87.50	$ 65.00
4x5 Linhof Super Tech RF f4.5 MX	389.75	197.00	165.00
23 Speed Graphic f4.5 RF	313.95	144.50	105.00

SLIDE PROJECTORS

*Blower cooled.

	New	Used	Trade-in
Argus PB300 case	$ 48.50	$ 22.50	$ 18.00
Argus 300W Auto case	66.50	33.25	30.00
GoldE Manumatic 300W*	56.50	23.50	18.00
Kodak Table Viewer 4x		24.00	15.00
LaBelle 22 200W	69.00	42.50	35.00
LaBelle 55 500W*	79.50	45.50	30.00
LaBelle Director 300W*	59.50	38.50	30.00
Revere 555 500W* case	79.50	43.50	35.00
Revere 888 500W case	144.50	53.50	45.00
TDC Headliner 300W	49.59	20.50	15.00
TDC Mainliner 300W	59.50	29.50	20.00
TDC Model D 300W	67.50	30.50	20.00
TDC Duo 300W* 2¼*	67.50	30.50	25.00
TDC Stereo View 300W*	144.50	77.50	60.00

8MM CAMERAS

	New	Used	Trade-in
B&H 134V f2.5g	$ 99.95	$ 37.50	$ 28.00
B&H 252 f2.3 Monterey	59.55	36.50	28.00
Bolex B8 f2.8 Yvar Tur	119.50	67.00	55.00
Bolex C8 f2.5	89.50	53.50	40.00
Bolex H8 Leader f1.9	259.50	141.50	115.00
Bolex 8mm Paillard f2.8	219.50	99.50	75.00
Cine Kodak Mag f1.9g	149.50	54.75	40.00
De Jur Fadematic f1.9g	149.50	91.00	65.00
Keystone Olympic f2.5	79.95	44.50	30.00
Revere 50 f2.8g	49.50	21.75	18.00
Revere 88 f2.5g	74.00	30.25	20.00
Revere 80 f2.5g	97.50	41.00	35.00
Revere 84 f1.9 Turg	147.50	82.50	60.00
Revere 44 f1.9 Mag. Tur	154.50	89.75	65.00
Revere B63 f2.8 Mag	142.50	82.00	55.00
Zoomar 8 f2.8	199.00	137.00	100.00

8MM PROJECTORS

	New	Used	Trade-in
Ampro Futurist 750W	$149.95	$ 75.50	$ 60.00
B&H 253 Monterey 500W	79.95	45.50	35.00
Bolex M-8 500W case	169.50	98.25	85.00
De Jur 1000W case	177.50	89.50	85.00
Keystone K109 750W	159.50	73.75	55.00
Kodak Brownie 300W	62.00	36.50	25.00
Revere 85D 500W	114.50	48.50	45.00
Revere 90 750W	125.00	64.00	55.00

16MM CAMERAS

	New	Used	Trade-in
Arriflex 16 (3 lenses)	2106.00	1275.00	1000.00
Bolex Stereo	387.00	85.00	60.00
B&H 200 f2.5 Magg	174.95	106.50	80.00
Bolex H16 Leader (3 lenses)	399.45	197.50	175.00
Bolex Pan Cinor f2.8	349.50	157.00	125.00
Cine Kodak K100 f1.9	269.00	167.00	140.00
Kodak Royal Mag f1.9g	169.50	92.50	70.00
Keystone A12 f1.9 Turg	159.50	95.50	65.00
Keystone f2.5 Magg	129.50	61.50	50.00
Pathe Super 16 Turg	450.00	225.00	180.00
Revere 16 f1.9 Magg	182.50	85.50	60.00
Victor IV f1.9 Tur		94.00	60.00
Vistascope Outfit	125.00	70.50	60.00

16MM PROJECTORS

	New	Used	Trade-in
Ampro Imperial 1000W	$299.50	$183.00	$150.00
Bolex G 6-16 750W	339.50	219.00	150.00
B&H 273A 750W case	199.95	98.50	90.00
B&H 173 750W case	299.95	159.00	125.00
Keystone A82 750W	139.50	62.50	55.00
Keystone K161 750W	159.50	73.50	60.00
Kodascope Royal 1000W	240.00	142.00	110.00
Revere 48 750W case	182.50	74.00	60.00

16MM SOUND PROJECTORS

	New	Used	Trade-in
Ampro Stylist 1000W	$419.85	$247.00	$185.00
Ampro Premier 40 1000W	579.00	339.00	250.00
B&H 285C 750W case	449.95	229.00	200.00
B&H 285 B1 1000W	514.95	234.00	230.00
B&H 202C 1000W	699.00	292.50	375.00
Kodak Pageant 1000W	375.00	229.00	190.00
Revere SP16 750W	325.00	159.00	135.00
Victor Lite Wt 750W	395.00	219.00	180.00

ELECTRONIC FLASH

	New	Used	Trade-in
Ce Be I Portable	$ 69.95	$ 28.00	$ 20.00
Dormitzer 208B Port	180.00	107.00	75.00
Dormitzer DB I Port	109.50	47.50	30.00
FR Port	54.95	35.50	25.00
Heiland VII Pro Pak	55.95	38.50	30.00
Heiland IV	369.50	189.00	130.00
Leitz Braun Hobby	89.95	...	40.00
Mighty Lite AC	49.95	28.00	15.00
Strobe II flash, Port	115.00	67.00	40.00
Sunlite "500" Port	49.50	27.50	20.00
Sunlite II 225, Port	79.50	47.50	35.00
Sunlite II model 110 AC	62.50	37.50	25.00
Ultrabitz Expert II M Port AC, Special	49.50	37.00	20.00
De Jur Port	39.95	28.00	20.00
Dormitzer 200B Port	225.00	164.00	125.00
Dormitzer 207	140.00	74.00	50.00
Heiland VI Port	141.60	85.50	60.00
Heiland III Port AC	197.50	94.50	50.00
Heiland V	119.50	64.50	45.00
Limelite 60 Port	99.50	61.50	45.00
Mighty Lite Port AC	84.95	57.50	35.00
Strobe III flash, Port	159.95	105.00	70.00
Sunlite III Port AC	139.50	84.50	55.00
Sunlite II Pocket Pak	89.50	56.00	35.00
Sunlite flash saver AC	39.95	23.00	15.00

TAPE RECORDERS

	New	Used	Trade-in
Ampro 731R		$ 47.50	$ 25.00
Federal FME 37C	139.50	84.50	60.00
Pentron 9T-3C	189.50	78.00	55.00
RCA 402	229.95	157.00	100.00
Revere 700D	212.50	127.50	105.00
Revere T100	169.50	69.50	50.00
Revere T1100	159.50	89.75	75.00
Revere TR600	234.50	109.50	75.00
Revere TR1000	249.50	147.00	110.00
Revere T10	235.00	137.50	105.00
TDC Stereotone	249.50	137.00	105.00
Webcor 2020	169.50	106.00	80.00
Wilcox Gay 4F10	199.95	112.50	100.00
VM Tape-o-Matic 700	179.95	107.50	85.00

ENLARGERS

	New	Used	Trade-in
23C De Jur f/4.5	126.50	79.50	60.00
45C De Jur Prof. f4.5	172.50	104.50	75.00
57D Elwood S2	69.00	43.00	30.00
57C Elwood SP25	145.00	87.00	60.00
35C Veigel f3.5 RF	114.50	69.50	50.00
2¼C Veigel f4.5 RF	189.50	109.50	80.00
23CL Federal 269CL f6.3	57.95	30.50	22.00
45D Federal 450 f4.5	119.55	65.50	40.00
23D Fotolarger D69 f6.9	34.95	19.50	15.00
45D Fotolarger f4.5	93.95	55.00	40.00
35C AU Focomat IC	138.00	94.50	65.00
2 35 AU Primos II f4.5	189.50	126.00	100.00
23C AU Automega B5	134.50	81.50	65.00
45CL Omegalite D2	177.75	...	70.00
23C Solar 120	69.50	41.00	30.00
45D Solar 45D	86.50	47.50	35.00
45C Solarmatic 45	132.50	82.00	60.00
23C Arnold D f4.5	79.50	49.50	40.00
23C De Jur II f4.5g	99.50	57.50	30.00
45C Besseler 45M	198.75	...	90.00
45C Au Omega D3	217.50	...	100.00
35C Federal 135 f4.5	54.95	28.00	20.00
23D Federal 240 f7.9	29.95	12.95	10.00
23D Federal 269 f6.3	43.95	20.50	12.00
23C Federal 279 f6.3	51.95	23.95	17.00
23C Federal 311 f4.5	75.95	38.50	25.00
23CL Federal 315CL f4.5	87.95	48.25	30.00
45C Federal 470 f4.5	142.55	81.75	50.00
45CL Federal 450CL f4.5	125.95	67.50	50.00
23D Fotolarger Merit f6.9	23.95	12.95	10.00
23D Fotolarger D45 f4.5	48.20	26.00	20.00
45D Fotolarger 100DC	59.95	34.50	25.00
35 C Leitz Valoy II	84.00	59.50	40.00
35C AU Primos I f3.5	179.50	84.50	65.00
23C Omega B6	109.50	61.00	50.00
45C Omega D2	187.50	...	80.00
57CL AU Automega E4	304.75	...	150.00
57D Solar 57D	86.50	47.50	35.00
23C Solarmatic 120	116.00	70.50	55.00
23D Mastercraft f6.3	42.50	26.00	20.00
45DC Mastercraft 45	99.50	62.50	45.00
57CL Besseler 57MB	239.75	...	130.00

EXPOSURE METERS

	New	Used	Trade-in
Actino U 1956 Model w/case & chain	$ 12.95	$ 6.95	$ 5.00
Berfram Chrostar	22.50	12.95	10.00
Brewkways (MS)	16.95	10.95	8.00
GE DW 68	26.50	10.95	8.00
GE PR1	32.50	15.50	10.00
Leica Meter	24.00	14.95	10.00
Sekonic	5.95	3.50	2.50
Weston Cadet	19.95	11.50	8.00
Weston Master II Univ.	31.50	13.50	10.00
Argus	16.95	10.55	7.00
Minilux w/case & chain	10.95	...	4.00

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64th International Salon of Photography, Toronto Camera Club, Toronto, Ontario, Canada.
Closes February 10, 1956.
Entry fee $1, four prints allowed.
On exhibition at Simpson's Avon House Galleries, Toronto, March 13 through 24, 1956.
For information and entry blanks, write Toronto Camera Club, North Toronto YMCA, 130 Eglinton Ave. E., Toronto 12, Ont.

2nd Annual Northwest Photo Show, Oregon Camera Club, Portland, Oregon.
Closes February 10, 1956.
No entry fee, color and black-and-white prints only.
On exhibition at Meier & Frank Co. Auditorium, Portland, February 26 through March 6, 1956.
For information and entry blanks, write Gerald H. Robinson, Oregon Camera Club, Room B-2, Lewis Bldg., Portland.

1st International Photo Salon, New Designs Pictorial, Djakarta, Indonesia.
Closes February 20, 1956.
No entry fee, number of prints on request.
On exhibition in Djakarta, beginning March 1, 1956.
For information and entry blanks, write Thomas Y. C. Wong, New Designs Pictorial, P. O. Box 2632, Djakarta.

1956 International Salon of Photography*, Koninklijke Kortrijkse Fotoclub, Kortrijk, Belgium.
Closes February 25, 1956.
Entry fee $1, color and/or black-and-white.
On exhibition at Kortrijk Town Hall, March 31 through April 9, 1956.
For information and entry blanks, write J. E. Van Driessche, 9, Meiweg, Kortrijk-Courtray.

12th San Francisco International Color Slide Exhibit*, Photochrome Club, San Francisco.
Closes February 25, 1956.
Entry fee $1, four slides allowed.
On exhibition in San Francisco, March 19 through 22, 1956.
For information and entry blanks, write Mrs. Leonarda Bockman, Photochrome Club, P. O. Box 188, San Francisco 1.

17th Milwaukee Exhibition International*, The Milwaukee Journal, Milwaukee, Wis.
Closes February 28, 1956.
Entry fee $2, four prints; $1, four slides; $1, four stereo slides.
On exhibition at Layton School of Art, 1362 N. Prospect Ave., Milwaukee, March 15, 1956.
For information and entry blanks, write Ray Miess, General Chairman, 1800 N. Farwell Ave., Milwaukee 2.

43rd Annual Pittsburgh International Salon of Photographic Art, The Photographic Section of the Academy of Science and Art, Pittsburgh, Pa.
Closes February 29, 1956 (prints), March 7, 1956 (slides).
Entry fee $2, four prints allowed; $1 plus postage, four slides.
On exhibit at Carnegie Institute Art Galleries, Pittsburgh, Pa., March 23 through April 22, 1956.
For information and entry blanks, write Walter R. Kneeland, Salon Secretary, 3658 Perrysville Ave., Pittsburgh 14.

14th Salon International Albert I, Cercle Royal Photographique de Charleroi, Charleroi, Belgium.
Closes March 1, 1956.
Entry fee $1, four prints allowed.
On exhibition at Charleroi, April 8 through 22, 1956.
For information and entry blanks, write Roger Populaire, 18 rue J. Destrée, Charleroi.

20th South African Salon of Photography (International)*, Johannesburg Photographic and Cine Society, Johannesburg, South Africa.
Closes March 15, 1956.
Entry fee $1, four prints or slides.
On exhibition in Johannesburg, May through August, 1956.
For information and entry blanks, write South African Salon of Photography, P. O. Box 7024, Johannesburg.

22nd Annual International Black-and-White Salon of Photography*, Pictorial Photographers of America, New York City.
Closes March 15, 1956.
Entry fee $2, four black-and-white and/or hand colored prints allowed.
On exhibit April 8 to 22 at the Salmagundi Club, 47 5th Ave., N.Y.C.
For information and entry blanks, write Karl Kunkel, 326 East 30th Street, New York City.

12th Canadian International Exhibition and 1st Nature Exhibition of Colour Photography, Toronto Camera Club, Toronto, Ontario, Canada.
Closes March 15, 1956.
Entry fee $1, each division; four slides in each division.
On exhibit at Royal Ontario Museum Theatre, March 6 through 8, 1956.
For information and entry blanks in pictorial division, write C. W. Pugh, 48 Blyth Hill Rd., Toronto 12, Ont.; nature division, write L. A. Trapp, 37 Wolverton Ave., Toronto 6, Ont.

7th International Color Slide Exhibit, The New York Color Slide Club, Inc.
Closes March 16, 1956.
Entry fee and number of prints on request.
Show dates to be announced.
For information and entry blanks, write Russell Mylery, 143-17 - 38th Ave., Flushing 54, N. Y.

1st Lauren Rogers International Exhibition of Photography*, Lauren Rogers Library and Museum of Art, Laurel, Miss.
Closes March 20, 1956.
Entry fee $2, four prints allowed.
On exhibition at Lauren Rogers Library and Museum of Art, April 1 through 27, 1956.
For information and entry blanks, write Nell Davis, P. O. Box 1138, Laurel, Miss.

2nd International California Mother Lode Exhibition of Color Photography*, Placer Camera Club, Auburn, Calif.
Closes April 6, 1956.
Entry fee $1, four slides allowed.
On exhibition in Auburn, Calif., April 14 and 15, 1956.
For information and entry blanks, write Bertha Koch, Exhibition Chairman, 167 Pine St., Auburn, Calif.

9th El Camino Real International Color Slide Exhibitions*, El Camino Real Color Pictorialists, Los Angeles.
Closes April 6, 1956.
Entry fee $1, four slides allowed.
On exhibition in Los Angeles, April 27 and 30, May 2 and 3; Santa Barbara, May 5.
For information and entry blanks, write 9th El Camino Real International Color Slide Exhibition, P. O. Box 8502, Crenshaw Station, Los Angeles 8.

25th Boston International Exhibition of Photography*, Boston Camera Club, Boston, Mass.
Closes April 9, prints; April 16, slides.
Entry fee $1.50, prints; $1, slides. Four prints and/or slides allowed.
On exhibit from April 29 to May 6, 1956, at Club Galleries, at 351A Newbury Street, Boston.
For information and entry blanks, write Miss Merriam Blodgett, 101 Plymouth Ave., East Milton, Mass.

2nd International Color Salon*, Pictorial Photographers of America, New York City.
Closes April 11, 1956.
Entry fee $1, four slides allowed.
On exhibit from May 1 to 4 at the Architectural League, 115 E. 40th St., N.Y.C.
For information and entry blanks, write Min Sapir, 1240 Woodycrest Ave., Bronx 52, N. Y.—▶

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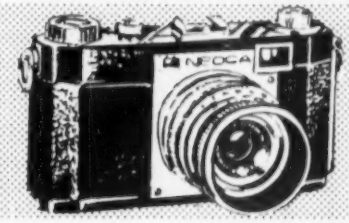

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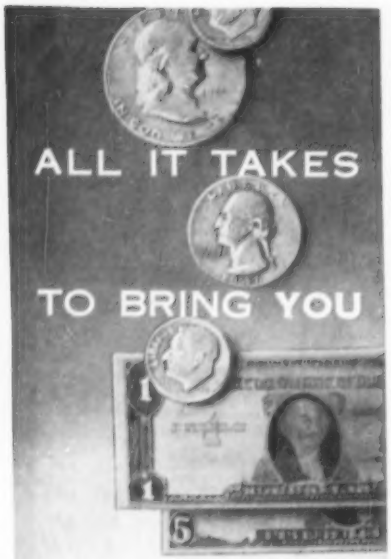

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INTRODUCING THE

YASHICAFLEX...

Twin lens reflex from Japan has built-in photoelectric exposure meter

HAVING SUCCESSFULLY invaded the 35-mm field, Japanese camera manufacturers are now turning their attention to the twin-lens field with an assortment of new models and features. One of the latest entries in the race is the Yashicaflex, a product of Yashima Kogagku Seiki featuring a built-in Sekonic photoelectric exposure meter. It is so new that prices have not yet been established, but POPULAR PHOTOGRAPHY was able to secure one of the few available models for a practical test.

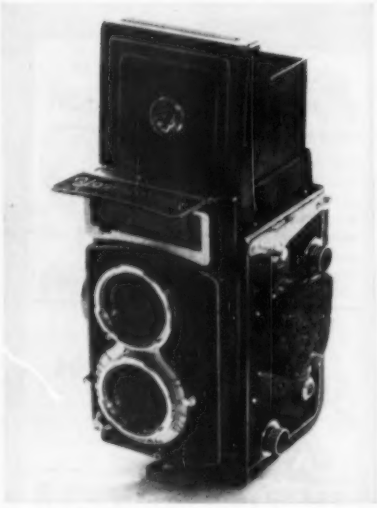
Our practical test is the equivalent of the ten-day trial period you usually get from your camera store. The camera is used under various conditions, with both black-and-white and color, to get the "feel" of the camera and its controls. It is not a substitute for a rigid laboratory test and no qualitative rating can be given. Instead of a judgment, it is an introduction to a new product with our observations and opinions.

Apart from the exposure meter, the camera, which resembles a Rolleicord III, has an 80-mm Heliotar *f*/3.5 lens in a Copal shutter with speeds from 1 to 1/300 second, a self-timer and "X" synchronization. Loading is semi-automatic, no red window being used. The film is inserted until arrows on the backing paper meet two red dots on the film track. The back is closed and the camera counter is set for the first exposure automatically when the film is wound in place. Some difficulty was found in getting the take-up spool seated properly. This may be only an individual "bug" in our sample model, or perhaps the tolerances are too close. Lens and shutter settings are on the front of the lens mounting. The film-winding knob has an ASA speed dial to indicate the film used.

Among the innovations which show careful attention to detail is a very smooth body release and a unique single-action latch which secures the hinged back of the camera. Turning the oversize tripod socket mount on the base propels and retracts the latch, making closing simple and the locking foolproof. The lenscap is of heavy-gauge aluminum with a neat locking catch marked "C" and "O."

Under actual picture taking conditions, the camera proved smooth-working and easy to use. The focusing knob, one inch in diameter, handled well even with gloves and provided smooth control over the entire focusing range from one meter to infinity. The distance scale on the test camera was marked in meters. We were not able to find out if future cameras will carry metric calibration or will be marked in the more familiar foot scale.

The exposure meter, whose readings were checked against two Weston meters, tended to read a half stop too high in good light and a full stop in poor light. Part of this discrepancy may be due to the short scale used on the Sekonic cell which is cramped at the lower end of the dial. There is a baffle for incident light readings which extends the range of the meter. Computations are made on a simple slide-rule scale in front of the hood, which is visible from above. The carrying strap on the case often obscured the face of the meter, making its use less convenient than might be expected. In all other respects, our camera performed well.



Yashicaflex features built-in exposure meter. Photo cell is at side of camera. Incident-light baffle is shown in open position. Slide-rule calculator can be seen above baffle.

The Heliotar lens is slightly longer than normal, having a focal length of 80 mm. Most reflexes use a 75-mm lens. This results in a slightly larger image and narrower viewing angle. Pictures were made at apertures from *f*/3.5 to *f*/22. The lens was quite sharp and seemed to be a good example of the better quality optics coming from Japan. Color photos, made on E-2 Ektachrome, showed a slight yellowish cast. We did not consider this objectionable but that may be a matter of personal taste.

In summary, we found the Yashicaflex to be a well-made, well-designed camera with some clever innovations. The finish left nothing to be desired. However, it is entering a field dominated by a camera whose name is a world-wide synonym for quality and dependability, and its eventual acceptance may depend more on price than anything else. At a low enough price, the Yashicaflex camera can be a really outstanding value in the twin-lens reflex field.—

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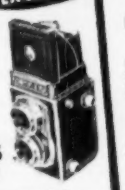

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Contax IIIA, f1.5 cld Sonnar	412.00	217.00	179.00
Graflex Ciro 35, f3.5	59.00	19.50	12.50
Kodak Signet, f3.5	75.00	49.00	37.50
Kodak Retina II, f2 CRF		62.00	51.50
Kodak Retina IIa, f2	149.50	105.95	72.00
Kodak Retina IIIc	190.00	137.50	114.95
Leica IIIF, f1.5 Summarit	358.00	229.00	173.95
Leica IIIF, f2, Summitar	324.50	189.50	145.95
Leica IIIC, f2 Summitar		154.50	113.50
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2¼ x 2¼ reflex

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8mm 700W Revere 90	125.00	81.50	66.95
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16mm Bolex H-16 Leader, f1.9	269.50	184.00	146.00
16mm Keystone A-9 f2.5	99.50	67.50	57.50
16mm 75W B&H 273	199.95	126.00	
16mm 750W Kodascope 16/10	140.00	99.50	89.00
16mm 750W Kodascope 16/20	225.00		129.50

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NEW BOOKS

PHOTO-OIL COLORING FOR FUN OR PROFIT, by Lucile Robertson Marshall. Published by Larum Publishing Co.; distributed by John G. Marshall Mfg. Co., 167 N. 9th St., Brooklyn, N. Y. Cloth bound, 5½ x 8½, illustrated, 148 pages, $3.50.

This is the seventh edition of a complete course on the coloring of photographs. Two new chapters have been added on photo murals and the use of heavy oil, and all technical data and market information is current.

EARLY DAYS OF COASTAL GEORGIA, photographs by Orrin Sage Wightman, story by Margaret Davis Cate. Published by Fort Frederica Association, St. Simons Island, Ga. Cloth bound, 8¼ x 10¼, illustrated, 235 pages, $6.00.

The camera has recorded what is left of the early colonists of Georgia—the landmarks and the descendants of the settlers and slaves. Each full-page photograph is accompanied by a page of explanatory text.

MARILYN MONROE AS THE GIRL, photographs by Sam Shaw, foreword by George Axelrod. Published by Ballantine Books, Inc., 404 Fifth Ave., New York 18, N. Y. Paper bound, 4¼ x 7, illustrated, 128 pages, 35 cents.

More than one hundred candid photographs tell the behind-the-scenes story of Marilyn Monroe and the making of the movie, *The Seven Year Itch*, in which she appears as The Girl.

KODAK EKTACHROME FILM. Published by the Eastman Kodak Co., Rochester 4, N. Y. Paper Bound, 6 x 8½, illustrated, 32 pages, 35 cents.

A sprightly, well-designed Data Book with an amazing amount of information presented painlessly and pleasurably. It illustrates the use of E-2 Ektachrome under various conditions with a simple explanation of the developing process.

THE NAKED TRUTH AND PERSONAL VISION, by Bartlett H. Hayes, Jr. Published by Addison Gallery of American Art, Phillips Academy, Andover, Mass. Cloth bound, 8 x 10¾, illustrated, 112 pages, $3.75.

This volume presents a selection of paintings, photographs, and sculpture to demonstrate some of the many approaches that have led to creative works of visual art. Ample interpretive text and numerous illustrations in color and black-and-white.

PHOTOGRAPHY ON A SMALL INCOME, by J. Allan Cash. Published by Hutchinson & Co., London. Distributed by Soccer Associates, 10 Overlook Terr., New York 33. Paper bound, 4¾ x 7¼, illustrated, 128 pages, $.75.

Mr. Cash explains how the amateur can improve his photographs without undue expense by careful choice of equipment, shooting methods, and home-processing techniques.

SECRETS OF TAKING GOOD PICTURES, by A. A. Knopf. Published by Hanover House, 575 Madison Ave., New York 22. Cloth bound, 5¾ x 8½, illustrated, 144 pages, $2.00.

This handbook for the beginner is written by a camera dealer and answers the questions most frequently asked by his many customers. Mr. Knopf has been an active photographer himself for many years and presents detailed information on choice and use of equipment, picture-taking procedures, color photography, and common errors and how they can be avoided.

GREAT PHOTOGRAPHS (VOLUME I), photographs by Suschitzky, edited by Norman Hall and Basil Burton. Published by The Press Centre, Ltd., London. Distributed by Rayelle Publications, 5700 Oxford St., Philadelphia 31. Paper bound, 9½ x 7½, illustrated, 24 pages, $.95.

An outstanding selection of the photographs of Suschitzky accompanied by an analysis of his methods and philosophy of photography. Includes technical data.

GREAT PHOTOGRAPHS (VOLUME II), photographs by Fritz Henle, edited by Norman Hall and Basil Burton. Published by The Press Centre, Ltd., London. Distributed by Rayelle Publications, 5700 Oxford St., Philadelphia 31. Paper bound, 9½ x 7½, illustrated, 24 pages, $.95.

Second in a series, this handsome book is devoted to the photographic art of Fritz Henle and demonstrates both its scope and quality. The pictures include fashion and figure studies and industrial and documentary subjects.

THE COMPLETE PHOTOBOOK, by Philip Johnson. Published by Fountain Press, London. Distributed by Rayelle Publications, 5700 Oxford St., Philadelphia 31. Cloth bound, 4¾ x 7¼, illustrated, 255 pages, $2.95.

The author discusses all phases of photography from the workings of the camera itself to retouching techniques. Text is amplified by an abundance of photographs, diagrams, and charts.

KODAK BOOKS AND GUIDES, available without cost from the Sales Service Dept., Eastman Kodak Company, Rochester 4, N. Y. Illustrated, 20 pages.

A newly revised listing which describes the many Eastman Kodak publications on general and specific photographic subjects for both amateurs and professionals.

EXPOSURE METER GUIDE, by Charles H. Coles. Published by Greenberg: Publisher, 201 E. 57th St., New York 22. Paper bound, 4¾ x 7¾, illustrated, 95 pages, $1.95.

Part I of this book explains the values and uses of reflected- and incident-light meters. The second section presents unusual exposure situations and the best solution for each. A catalogue of exposure meters with their characteristics rounds out this valuable handbook.

LIVING MAMMALS OF THE WORLD, by Ivan T. Sanderson. Published by Hanover House, 575 Madison Ave., New York 22. Cloth bound, 8½ x 11¾, illustrated, 303 pages, $9.95.

This remarkable volume describes every living mammal known to man. The text is concise and lively. More than 300 outstanding photographs in color and black-and-white represent the works of Ylla, John Markham, Roy Pinney, Cy La Tour, Van Nostrand, Ernest P. Walker, and many others.—

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Bell & Howell 134-TA, 0.5" f1.4 & 7mm f2.5 & 1.5" f1.9	219.95	149.50
Bell & Howell 172-B, 0.5" f2.5	134.95	74.50
Bell & Howell 172-A, 0.5" f2.5	169.95	94.50
Bell & Howell 172-A, 0.5" f1.4 & 1.5" f1.4	221.95	144.00
Keystone K-25 Capri, 0.5" f2.5	49.95	27.50
Keystone K-35 Olympic, 6.5mm f1.9 & 12mm f1.9 & 1.5" f1.9	121.95	79.50
Keystone K-41 Bel Air, 13mm f2.5	69.50	32.50
Keystone K-45 Riviera, 6.5mm f1.9 & 13mm f1.9 & 1.5" f1.9	141.95	74.50
Bolex H-8 Leader, 0.5" f1.9	258.50	132.00
Bolex H-8 Leader, 6.5mm f1.9 & 0.5" f1.9 & 1.5" f1.9	261.50	185.00
Bolex H-8 DeLuxe, 6.5mm f1.9 & 0.5" f1.5 & 1.5" f1	641.00	255.00
Bolex B-8, 0.5" f2.8	119.50	66.00
Bolex B-8, 0.5" f1.5 & 1.5" f1.5	198.50	129.50
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Revere 99, 13mm f2.8	99.50	41.50
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Revere C-50, 12.7mm f2.8	49.50	19.95
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Revere 85 DeLuxe, with case	124.50	$ 49.50
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Bolex M-8	169.50	79.50
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Keystone K-70 Brightbeam	59.95	34.50
Keystone K-70C Brightbeam	69.95	41.50
Keystone K-95M Nine-Five Magna Scope	124.50	70.00
Keystone K-100 One Hundred	99.95	54.50
Keystone K-109 Regal	159.50	79.50
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Bell & Howell 200-TA Magazine Camera with Ultra High Speed Lenses 1" f0.95 & 0.5" f1.5 W.A. Lens, & with 3" f1.5 Telephoto Lens	415.95	299.00
Bell & Howell 70-DR with 1" f2.5	361.50	
Bell & Howell 70-DL with 1" f1.9		219.50
Bell & Howell 70-DR with 9.5mm f2.2 & 1" f0.95 & 640mm f5	817.00	585.00
Bolex H-16 Leader with 1" f1.9	368.50	221.00
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Bolex H-16 Supreme with 13mm f1.5 & 1" f1.5 & 3" f1.5	499.00	321.00
Cine-Kodak Special II with 1" f1.9	956.00	560.00
Keystone A-9 with 1" f2.5	99.50	47.50
Keystone A-12 with 1" f1.9 & 3" f1.9	162.50	87.50
Revere 16 with 1" f2.5	157.50	59.50
Revere C-36 with 1" f2.5	159.50	
Revere 26 with 1" f1.4	215.50	129.50
Revere 26 with 17mm f2.7 & 1" f2.5 & 3" f2.5	217.50	99.50
Revere C-38 with 10mm f2.2 & 1" f1.5 & 3" f1.9	289.50	149.50
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Revere C-106 with 1" f1.5 & 3" f1.5	254.50	
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Keystone K-161 Belmont	159.50	82.00
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Bell & Howell 385-C	464.95	
Bell & Howell 285-C	449.95	229.00
Bell & Howell 285-B1 New Academy	529.95	275.00
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Bell & Howell 202-B1	799.00	425.00
Bell & Howell 202-B3	869.00	495.00

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	NEW	USED
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Contax I f2.8 Tessar		62.50
Contax II f2 Sonnar		78.95
Contax III f2 Sonnar		104.95
Contax IIA f1.5 Sonnar	374.00	183.50
Contax IIIA f2 Sonnar	303.00	184.50
Contax IIIA f1.5 Sonnar	412.00	189.95
Leica IIIC f3.5 Elmar		86.50
Leica IIIC f2 Summitar		114.85
Leica IIIF f3.5 Elmar	237.00	127.75
Leica IIIF f2 Summicron	336.00	172.50
Leica IIIF f1.5 Summarit	357.00	181.50
Nikon S2 Nikkor f2	269.00	109.50
Nikon S2 Nikkor f1.4	299.95	162.50
Rectaflex f2 Xenon	350.00	119.95
Bolsey B2 Rf	66.50	27.50
Bolsey C22 f3.2 Reflex	99.50	57.50
Rodex Flash Bantam f4.5	56.00	27.50
Rodex Flash B28 f4.5	29.50	16.75
Retina II f2 Xenon		94.50
Rodek Bantam Special f2 Xenon	185.00	77.40
Rodek Town & Country f3.5	75.00	44.50
Minox IIIS Chain and case	139.50	79.50
Minox III	129.50	62.50
Robot II Bistar f2	127.50	49.50
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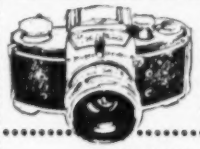

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50mm f2.8 Schacht Travenar Auto pre-set	49.00
50mm f2.8 Biometer pre-set	69.50
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135mm f3.8 Sun lens	35.00
135mm f3.5 Travenar Auto pre-set	49.95
135mm f4.5 Schacht Travagon	29.95
135mm f3.5 Arco Tele-Collinar pre-set	39.95
180mm f2.8 Zeiss Sonnar pre-set	229.50
250mm f5.5 Meyer Goerlitz Tele-Megor	99.13
300mm f4 Carl Zeiss Sonnar pre-set	329.50
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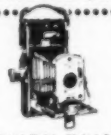

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Pentacon with Automatic Westagon f2	169.50
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Port. File Cab. for 12 Trays, Reg. 14.95	Spec.	7.95
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Contaflex I	24.50	+ your Retina IIA
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Contaflex II	67.50	+ your Contaflex I
Contax IIA & IIIA	66.50	+ IIA for IIA or IIA for IIIA (Body for Body)
Contax IIIA	44.50	+ your Contax IIA
Exakta VX	40.50	+ your Exakta V
Exakta VX	80.50	+ your Exakta I or II
Exakta VX	29.50	+ your Leica IIIF
Exakta VX	28.50	+ your Contax IIA
Exakta VX	54.50	+ your Contax D
Exakta VX	85.00	+ your Contax II or III
Exakta FX	86.00	+ your Praktica FX
Exakta VX Latest	44.50	+ your old Exakta VX (Body for Body)
1955 Exa MX	33.50	+ your Argus C-3
1955 Exa MX	24.50	+ your Argus C-4
1955 Exa MX	36.50	+ your Kode 35 RF
1955 Exa MX	39.50	+ your Bolsey B2
1955 Exa MX	25.50	+ your Kodak Signet
Leica M-3	117.50	+ your Leica IIIF (Self Timer)
Leica IIIF	56.50	+ your Leica IIIC
Nikon S-2 Latest Model	105.50	+ your Nikon S (Body for Body)
Nikon S-2	144.50	+ your Retina IIA
Nikon S-2	56.00	+ your Leica IIIF
Nikon S-2	54.50	+ your Contax IIIA
Nikon S-2	113.50	+ your Rolleiflex MX
Nikon S-2	69.50	+ your Contax IIA
Nikon S-2	85.00	+ your f1.5 Sonnar
f1.4 Nikor	85.50	+ your f2 Sonnar
Revere 888 Projector	66.50	+ your Revere 444
Retina IIIC Latest	74.50	+ your Retina IIA
Retina IIIC	75.50	+ your Contessa
Retina IIIC	84.50	+ your Vitessa MX
Rolleiflex, Rolleicord V	63.00	+ your Rolleiflex MX
Rolleiflex, Rolleicord V	45.50	+ your Rolleicord IV
Rolleiflex 2.8C	116.50	+ your Rolleiflex MX
Rolleiflex 2.80	75.50	+ your Rolleiflex 2.8C

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LEICA M-3	NEW	288.00	447.00	468.00	579.50	319.50	369.50	324.50	348.00
	Used	172.80	268.20	280.80	347.70	191.70	221.70	194.70	208.80
LEICA IIIF	NEW	180.00	336.00	357.00	499.00	239.00	289.50	249.00	237.00
	Used	108.00	201.60	214.20	299.40	143.40	173.70	149.40	142.20
CANON IVS	NEW	164.00	249.50	269.00	464.00	219.50	264.00	224.50	169.50
	Used	98.40	149.70	161.40	278.40	131.70	158.40	134.70	101.70
NIKON S2	NEW	195.00	—	—	499.00	—	345.00	299.50	—
	Used	117.00	—	—	298.40	—	207.00	179.70	—
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No. 165 16mm Roll Film 100'	18.60	8.19
No. 382 16mm Magazine	6.95	5.69

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120	1.25	.95
620	1.25	.95

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R828	1.00	.75
R120	1.25	.99
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Contax II f2 Sonnar		76.95
Contax III f2 Sonnar		107.95
Contax IIA f1.5 Sonnar	374.00	167.50
Contax IIIA f2 Sonnar	383.00	177.95
Contax IIIA f1.5	412.00	188.50
Leica IIIC f3.5 Elmar		84.50
Leica IIIC f2 Summitar		118.95
Leica IIIF f3.5 Elmar	237.00	126.50
Leica IIIF f2 Summicron	336.00	175.95
Leica IIIF f1.5 Summarit	357.00	173.95
Nikon f2 Nikkor	269.00	128.50
Nikon f1.4 Nikkor	299.95	164.95

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Kodak f3.5	$ 84.50	$ 49.50
Revere f3.5	174.50	69.50
Realist 45 f3.5	88.50	52.50
Stereo Realist f3.5 RF,	159.00	64.50
Stereo Realist f2.8 RF,	192.50	104.50
TDC Colorist f3.5	99.50	64.50
Kindar f3.5 RF,	99.50	57.50

35mm CAMERAS

	New	Used
Argus C 3 RF, case, flash	66.50	29.95
Bolsey B-2, RF, f3.2	58.95	27.50
Bolsey B 22, RF, f3.2	69.50	34.50
Kodak Bantam RF, f3.9	56.75	38.50
Kodak Signet RF, f3.5	75.00	44.50
Mercury II, f2.7	41.95	18.95
Minox IIIS, case, chain	139.50	77.50
Kodak Pony 828, f4.5	29.50	15.95
Kodak Retina IIIC, Xenon f2 RF	190.00	114.50
Kodak Retina II, Zenon f2 RF		49.50
Graphic 35f 3.5 , case, flash	89.50	52.50
Contaflex I, RF, f2.8	169.50	99.50

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Ikoflex IIa, f3.5 Tessar, MX	126.00	72.50
Rolleicord V, f3.5 Xenar, , MX	134.95	87.50
Auto Rolleiflex, f3.5 Tessar, MX	249.50	144.50
AutoMatic Rolleiflex 2.8 , MX	309.50	174.50
Kodak Reflex II, f3.5		54.50
Semflex, f3.5, , MX Reg. $99.50	67.50	47.50
Alpenflex, f3.5, , MX Reg. $149.50	44.50	

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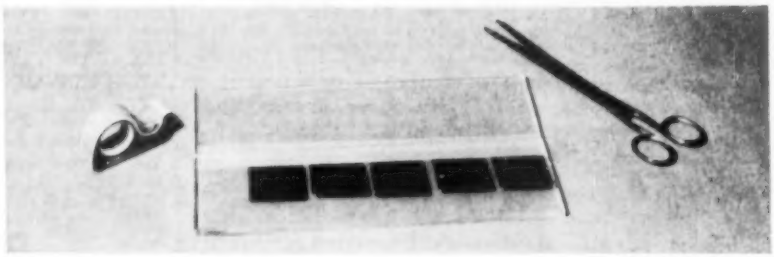
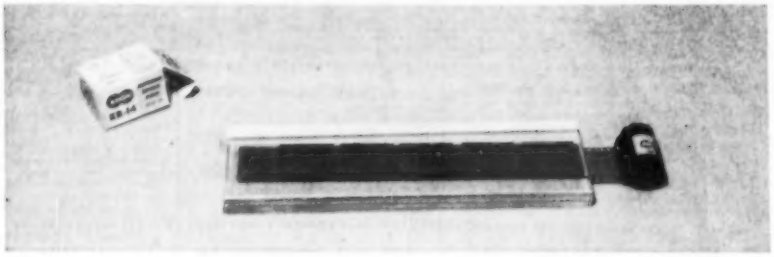
TRY BLACK-AND-WHITE PRINTS FROM COLOR

Here is a simple method using a minimum of equipment for low-cost copies of your slides



Color transparencies are placed in the print frame emulsion side up. The frame is made by binding the two glass plates so as to form a book. The size can be varied to suit needs.



This is the closed book ready for use. The film is placed emulsion to emulsion and is secured by tape. This step must be done in darkness; practice with waste film in light.

By DON BIGGS

If you don't like spending a fortune for color prints and if the idea of dragging out a projector every time you want to see your color pictures does not appeal to you, try making black-and-white enlargements from your color slides. They are easy to make, economical, and you can use them to fill all the requests for copies of that cute shot of baby in the bath.

All you need in the way of equipment is a roll of fine-grain 35-mm film (Adox KB-14 or Panatomic-X), two pieces of glass 2½x10 inches for a printing holder, a roll of masking tape, and a roll of cellulose tape. The whole bill, film included, should be about three dollars.

The method involves making black-and-white negatives from your transparencies by contact printing, then using these negatives in the regular way to make your enlargements. First, bind the glass plates together along the long edge, forming a book. Next, remove the slides from their mounts and place them end to end in the holder, emulsion side up. Hold the slides in place with a strip of cellulose tape, taking care to place only about ⅛ inch on the film. Cut the leader from the roll of film and secure the straight edge to one end of the lower half of the glass holder with tape. The film should be placed emulsion side down so that it faces the slides emulsion to emulsion. Remember to work in total darkness once the film is taped into place since the fine-grain film is panchromatic and sensitive to all light.

Pull out enough film from the cartridge to cover all the color frames, using the tape as a guide to keep the film straight. After sufficient film, about ten inches, has been unrolled, cut the film, close the holder, and turn it over so that the color frames are on top of the film.

Excellent results can be obtained by using your enlarger as a light source. Place the lamphouse high enough so that the whole length of the holder is evenly illuminated. To determine exposure, place a transparency of average density in the negative holder. From the baseboard, take a reading with your exposure meter (using the tungsten rating of your film) of the light passing through the enlarger. Remove the transparency from the negaitve carrier before making the actual exposure. I have found that with my Valoy enlarger, a four-second exposure at *f*/8 on KB-14 film gives satisfactory results, but you will have to experiment a bit.—

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Prices include Processing

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Above, over-all view of compact darkroom showing placement of equipment and size of work space. Below, draperies enclose darkroom to blend with decor of apartment.

Compact Darkroom

by Don Wooddy

In today's small houses and small apartments the photographer often is hard put to find space enough for a darkroom. However, surprisingly little room is needed for an efficient, permanent setup. For example, the compact darkroom shown here was built in a wall niche measuring only 28x60 inches, and can easily be duplicated in any similar wall arrangement or in a closet.

Shelves built into the knee-hole of a small desk store trays and a dryer. Ample drawer space is provided for paper, negative files, developing tanks, and other equipment. There is room on the desk top for an enlarger and two 11x14 trays. The writing leaf holds a third tray.

Mounted on the wall above the desk are a paper safe, two chemical shelves, safelight, viewing tin, white light, electrical outlets, film clips, tongs, negative carriers, and an electric clock. Prints are washed in the bathroom or kitchen.

The darkroom is separated from the rest of the room by draperies which can be drawn when the darkroom is not in use. Windows are covered with black curtains when it is necessary to darken the room for photographic purposes.—

(*Continued from page 82*)

17. (a) Booklet: "Take A Tip From Hollywood," describes Elgeet lenses, instructions on home movies, etc., 36 pp., illus., 10¢. ELGEET OPTICAL COMPANY.

18. (b) Brochure: Steinheil lenses, wide angle, telephoto and movie lenses. (c) Brochure: Angenieux Lenses, complete information on construction, angles of view, relative magnification, range, focal length. (d) Catalog: "Equipment Information from Exakta," lists latest lenses recommended for the Exakta Camera, 28 pp., illus. 10¢. EXAKTA CAMERA COMPANY.

28. (b) Folder: How to Use Your Elitar Soligor Lens, descriptive information on Telephoto, Wide Angle, prices. INTERSTATE PHOTO SUPPLY.

31. (b) Chart: Shows test of Hexanon 50mm F/2.8 lens as used in the Konica II. KONICA CAMERA COMPANY.

32. (f) Booklet: Leica Lenses; 34 pp., illus.; data, descriptions. E. LEITZ, INC.

52. (f) Booklet: "Zeiss Lenses For The Hasselblad Camera," detailed information and discussion of Zeiss lenses for the Hasselblad; 10pp, illus. WILLOUGHBY'S WHOLESALE.

54. (a) Booklet: Raptar 8mm cine lenses. (b) Booklet: Raptar 16mm cine; depth of field projection charts. (c) Booklet: "How to Have More Fun With Your Camera." WOLLENSAK.

61. (a) Circular: Slip-On Filters. (b) Circular: Hi-Trans Filters. (c) Circular: Auxiliary Close-up Lenses for all movie and still cameras. (d) Circular: Photar Filters. (e) Circular: Tiffen-Polaroid Light-Polarizing Filter. TIFFEN MARKETING CO.

PROJECTORS, SLIDE

5. (a) Booklet: How To Select A Slide Projector. AMERICAN OPTICAL.

6. (e) Brochure: "Curtain Time," hints to help with color slide shows. ARGUS CAMERAS, INC.

21. (c) Folder: Describes Skan automatic "slide-cooling" projector, illus. G-M LABORATORIES, INC.

44. (a) Brochure: A complete listing of all regular View-Master Reels and Packets, including product prices. (b) Brochure: Stereo Today, a complete coverage of the View-Master Stereo System, information on products in this system. SAWYER'S, INC.

48. (a) Leaflet: Engineered projection equipment; data, details. VIEWLEX.

FLASH EQUIPMENT

1. (a) Booklet: Various styles of lighting equipment for still pictures, indoor movies and 3-D shots. (b) Folder: Describes use of multiple floodlamp control box, gives electrical facts affecting use of flood and flash lamps; 6pp. (c) Catalog: Photoflood Lighting, highly descriptive and illustrated 16-page booklet of lighting equipment for amateur and professional photographer. Includes lighting tips on indoor still and movie pictures with diagrams, charts, etc. ACME-LITE MFG. CO.

4. (a) Booklet: "How To Take Professional Flash Pictures With Your My-T-Myte Flashbulbs," 8pp., illus. AMPLEX.

6. (d) Booklet: "Flash"; data on flash for Argus cameras, 8pp., illus. ARGUS CAMERAS, INC.

13. (a) Booklet: "Light Makes the Picture, Synctron Takes It Better." (b) Booklet: Current technical data on Synctron models. (c) Catalog: Includes accessories, technical information, prices, individual specification sheet for each model. (d) Folder: "55 Quick Facts on Dry Battery and Dynascal Power." DORMITZER ELECTRIC COMPANY.

22. (a) Folder: "Triangle Lighting" formula for taking indoor pix with light. (b) Booklet: Photoflash Tips. (c) Bright Ideas-flash pix of parties, kids, adults. (d) Photolamp Data—lighting, exposure, film speed for flash, flood, other lamps. (g) Booklet: The M-2 Bulbs; data information on the "tiny" bulbs. GENERAL ELECTRIC.

23. (b) Folder: Graflite. (c) Folder: Stroboflash. GRAFLEX.

24. (a) Booklet: "Strobonar Units," 16pp, illus. (b) Booklet: "Synchro-Mite," 8pp, illus., flash units. (c) Booklet: Professional Flash Synchronizers; including solenoids, reflectors, battery cases; 16pp, illus. (d) Booklet: "Synchro Units"; 8pp., illus. (e) Folders: 1. Fotoeye; 2. Koiled Kord; 3. Strobonar Six; 4. Strobonar Seven. HEILAND.

34. (c) Booklet: Minolta Jr. B-C Flash Gun. MINOLTA CAMERA CO.

25. (a) Folder: Sun-Lite II: description and illus. on speedflash. (b) Folder: Sun-Lite 500, description and information, 6pp, illus. (c) Folder: Flash Saver, description, 4pp. (d) Manual: Sun-Lite II instruction booklet, detailed information on Sun-Lite II Portable Speed Flash, all 3 models; 20pp, illus.; 25¢. HERSHEY MFG. COMPANY.

28. (a) Folder: Describes 3 models of electronic flash, Expert IV, Matador, Reporter I, prices. INTERSTATE PHOTO SUPPLY.

29. (b) Booklet: Secrets of Press Photographer, by Joe Costa. 20pp, illus. (c) Folders: Kalart Flash Equipment, BC-400 and Kalart Super Speed Flash. KALART COMPANY, INC.

35. (a) Booklet: Eveready Battery Engineering Bulletin on flash photography, 12pp, illus.; issued periodically. (b) Eveready Batteries, data, helpful information "B," "B-C" batteries. NATIONAL CARBON COMPANY.

36. (a) Leaflets: Technical information and data on use of the Megalume electronic flash. (b) Pamphlet: "Reciprocity Failure and the Determination of Exposure With Some Electronic Flash Equipment." NEMS-CLARKE, INC.

46. (a) Brochure: Listing of lighting equipment for semi-professional or advanced amateur. (b) Brochure: Complete listing of lighting equipment for the amateur and movie maker. (c) Booklet: "Indoor Photos Made Easy," how to do indoor lighting, 16pp, illus. SMITH-VICTOR CORPORATION.

47. (a) Folder: "Flash is Easy—Flash is Fun"; complete flash instruction for advanced, amateur, beginner. (b) Booklet: How to Take Better Pictures and Have More Fun With Flash; 32pp. illus. (c) Booklet: Color Flash with Box Cameras. (d) Booklet: How to Throw a Snapshot Party; 24pp, illus. (e) Card: Wallet Size, gives correct F-stops. (f) Brochure: Basic Lighting Placement, illus. (g) Specification Sheets: 1. Blue Dot Line; 2. Projection Lamps; 3. Darkroom and Enlarger Lamps; 4. Super-floods. SYLVANIA ELECTRIC.

8. (c) Exposure Guide: Pocket size, gives correct F-stops. BOLSEY CORPORATION OF AMERICA.

50. (a) Calculator: Vest-pocket size; b&w and color settings at varying distances, speeds, f-stops. 10c. (b) Brochure: The ABC of Flash Photography; guide to how, when, why to use flash bulbs. (c) Brochure: Your guide to better pictures thru better lighting; comprehensive discussion of Westinghouse bulbs. (d) Booklet: Betty Furness Says, illus.; on projection lamps for home movies. WESTINGHOUSE.

55. (a) Booklet: Descriptive data and information on Limelite "60"; 14pp., illus. (b) Folder: Describes Limelite Electronic Flash; 4pp, illus. LIME-LITE CORPORATION.

57. (a) Brochure: 6pp., Mallory B-C Cartridges photo flash item; complete cross-reference unit to flash attachment; 50 units; Mallory B-C Mercury Cartridges. (b) Leaflet: Complete explanation of application of Mercury for foto-flash. P.R. MALLORY & CO.

PROCESSING EQUIPMENT AND MATERIALS

10. (a) Brochure: Illustrating design and function of Model 45M Enlarger, 24pp. (b) Leaflet: Additional uses of Model 45M Enlarger. (c) Pamphlet: Discusses characteristics and operation of Model 57MB. (d) Book: A Brief 73 Year History of Enlarger Design, 32pp. CHARLES BESELER COMPANY.

19. (a) Booklet: "How to Buy an Enlarger." FEDERAL MANUFACTURING AND ENGINEERING CORP.

27. (a) Leaflet: Time-O-Lite Printer. (b) Leaflet: Time-O-Lite Meters and Switches. INDUSTRIAL TIMER.

32. (g) Brochure: Focomat Enlarger, data, description. E. LEITZ, INC.

33. (a) Booklet: "Marshall's Guide for Hand-Coloring Photographs," special section on heavy oils, 36pp, illus. 25¢. (b) Pamphlet: Color Chart; Marshall's photo-oil colors, price list of sets, accessories. 10¢. (c) Pamphlet: Make Life More Colorful, discusses photo-coloring; (d) Pamphlet: Information on the photo-oil pencil. JOHN G. MARSHALL MANUFACTURING CO.

45. (b) Catalogs: Omega A-2, B-7, B-8, D-2, D-3, E-5; (One on each model, specify which you want.) (c) Booklet: How To Buy The Right Enlarger. (d) Booklet: Omega Distortion Correction Attachment. SIMMON BROTHERS.

56. (a) Folder: Describes "Static Master," gives uses and prices, 3pp, illus. NUCLEAR PRODUCTS.

58. (a) Brochure: Discusses Lisco Cut Film Holder; gives data and information on exclusive features. LISCO PRODUCTS.

60. (a) Booklet: Clayton P-60 Fine Grain Developer; detailed instruction on use; 16pp, illus. CLAYTON CHEMICAL CORP.

62. (a) Booklet: Describes methods and materials for mounting transparencies for viewing and projecting. ERIE SCIENTIFIC CORP.

EXPOSURE METERS

20. (a) Booklet: Catalog sheet and booklet describes original direct-reading, photo-electric exposure meter, reading directly in f/stops, with film speed charts. (b) Brochure: "Ideal Rangefinder," instructions for calibrating rangefinders. (c) Brochure: Catalog sheets, golf club selector guide, information on Long-Range Rangefinder and its uses. FEDERAL INSTRUMENT CORP.

21. (a) Circular: Describes the Skan Quick Meter, price, information. (b) Booklet: Technical data, information on use and care of Skan Meters, helpful hints, 24pp, illus. G-M LABORATORIES, INC.

22. (e) Leaflet: GE Exposure Meters, significant features which adopt one of three GE meters to specific requirements. (f) Booklet: Color Control Meter and Variable Color Filter; how to achieve full control of color. GENERAL ELECTRIC.

51. (a) Circular: Describes Model 735, the Weston Master II Exposure Meter and the Direct Reading Exposure Meter, Model 853. (b) Pamphlet: "Using Weston Exposure Meters With Polaroid Land Cameras." WESTON ELECTRICAL INSTRUMENT CORP.

PICTURE TAKING ACCESSORIES

40. (a) Booklet: "New Super Quick-Set Universal Photographic Support," illustrates and describes new system for handling cameras and related accessories, 12pp. (b) Folder: "Whitehall Tripods."6pp. illus. QUICK-SET, INC.

59. (a) Catalog: 12pp., illus—describes all types of camera bags and leather goods of use to the photographer, lists prices. J. B. PERRIN CO.

FILM, PAPER

3. (a) Booklet: Ilford Flat Films, 12pp, illus: information and technical data. (b) Brochure: Ilford Roll Films, data and description; 6pp. (c) Circular: Ilford Microphen Developer, how to use it, and what it does. ALCO PHOTO SUPPLY.

14. (a) Book: "DuPont Photographic Films"; gives detailed information on photographic films, papers, chemicals; fundamental elements of photography, 85pp. bibliography, well illustrated. 35¢. (b) Book: "DuPont Photographic Papers"; designed to assist in print making. Information on selection of proper paper and correct use; surface designation chart, formula section; 57pp, illus. 35¢. DUPONT & COMPANY.

43. (d) Booklet: Features and instructions on uses of Diaversal Enlarging Paper. REVERE CAMERA CO.

VIEWERS

2. (a) Booklet: Describes in detail features of Admiral Slide-Light Viewer; 8pp. ADMIRAL PHOTO PRODUCTS.

SLIDES, STEREO

43. (e) Booklet: Features of Shield 'N Vue Slide Projectors. REVERE CAMERA CO.

TAPE RECORDERS

43. (f) Booklet: Features of hi-fi "Balanced Tone" Tape Recorders. REVERE CAMERA COMPANY.

19. (b) Circular: Model 37C; Model 47A; description, data. FEDERAL MANUFACTURING & ENGINEERING CORP.

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6e	7a	7b	7c	7d	8a	8b	8c	10a	10b	10c	10d	11a
11b	11c	12a	13a	13b	13c	13d	14a	14b	15a	15b	15c	15d
15e	15f	15g	15h	16a	16b	16c	17a	18a	18b	18c	18d	18e
19a	19b	20a	20b	20c	21a	21b	21c	22a	22b	22c	22d	22e
22f	22g	23a	23b	23c	24a	24b	24c	24d	24e	25a	25b	25c
25d	26a	26b	26c	26d	27a	27b	28a	28b	29a	29b	29c	29d
30a	30b	30c	30d	31a	31b	31c	32a	32b	32c	32d	32e	32f
32g	33a	33b	33c	33d	34a	34b	34c	35a	35b	36a	36b	37a
37b	38a	39a	39b	40a	40b	41a	41b	41c	42a	43a	43b	43c
43d	43e	43f	43g	44a	44b	45a	45b	45c	45d	46a	46b	46c
47a	47b	47c	47d	47e	47f	47g	48a	49a	49b	50a	50b	50c
50d	51a	51b	52a	52b	52c	52d	52e	52f	53a	54a	54b	54c
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CONTESTS AND MARKETS

CONTESTS

THE ELEVENTH ANNUAL HIGH SCHOOL PHOTOGRAPHIC AWARDS has again been opened to all high-school students, grades 9-12 in the United States and its territorial possessions. Awards will be made in four classes: 1—School Activities (including athletics); 2—People (outside of school); 3—Pictorials; 4—Animals and Pets. Duplicate prizes of $300, $200, and $100 will be awarded in each class. Four Special Awards of $50 will also be awarded along with 240 honorable mention awards of $10 each. Any number of photographs made since April 1955 may be submitted before the contest deadline, March 31, 1956. Additional information is available from National High School Photographic Awards, 343 State Street, Rochester 4, New York.

GRAFLEX has announced its 1956 contest featuring photographs taken with Graflex-made cameras. Prizes totaling $10,000 will be awarded among the six contest categories: Press (two classes); industrial; professional; nonprofessional; teen-age and stereo. The Graflex Press Fellowship, consisting of a week of on-the-job training in the photographic department of a metropolitan newspaper, will again be awarded to the most outstanding junior from among the teen-age or non-professional classes. A Chevrolet station wagon will be awarded as the grand prize this year for the best photograph entered in the contest. Entry blanks and further information on this contest, which ends March 1, 1956, are available through Graflex dealers or by writing Contest Manager, Graflex, Inc., Rochester, N. Y.

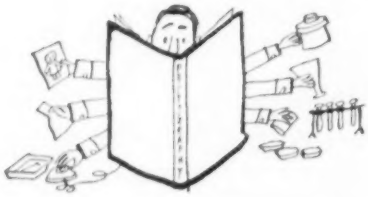
SCHOLASTIC MAGAZINES and ANSCO have opened their 1956 contest to high-school students in grades 7-12. The contest is again being held on a regional as well as national level and entries are eligible for the national contest only in cases where there is no local sponsor. The three major classifications are Black-and-White for students in grades 7-9; Black-and-White for students in grades 10-12; Color, open to all. Top prizes of $50, $25, and $15 will be awarded in each division. Ansco will double the money if the winning picture is made with Ansco film and Sylvania will do the same if one of their flashbulbs was used in making the winner. To check deadline of your regional contest and get full details on the national contest, which closes March 15, 1956, write Scholastic-Ansco Photography Awards, 33 West 42nd St., New York 36.

MARKETS

PHOTO CRAFT MURALS will pay a minimum of $10 for photographs suitable for use as photo murals. Further information is available from the firm at PO Box 2636, West Allis, Wis.

AUTHENTICATED NEWS SERVICE is looking for individual pictures and picture stories on the following: personalities, travel, industry, children and pets, and news events. Acceptable material will be purchased outright or sold by the Service on a royalty basis; other material will be returned. Competent photographers in key cities in the United States may become permanent members of the organization. Write Alan D. Haas, Executive Editor of Authenticated News at 170 Fifth Avenue, New York, N. Y., for details.

STAMOS PHOTOGRAPHY SERVICE, 100 Oxford Ave., Buffalo 9, N. Y., is looking for cheesecake photographs in both black-and-white and color. $5 will be paid for accepted black-and-white prints no larger than 4x5 and $10 for 2x2 color transparencies. Exclusive rights are not required and unused material covered by postage will be returned.—►



What's new—trade notes and news

(*Continued from page* 39)

PORTABLE POWER SUPPLY for driving small movie cameras and related equipment includes power source and converter in a 7½x6½x4½ in. case and continually supplies 35-watt, 60 cycle, 100-volt a-c. Other features are fused equipment; meter for showing battery condition; charge hole; test switch; and on-off power switch. Price is $68.50 including battery. Manufacturer is Filmtronics Inc., 96 Huntington St., New London, Conn.

PERF-CLEAN is a dirt and grease remover for film, fibers, photo glass, and instruments. A two-oz bottle, capable of cleaning 1000 8x10 prints, is priced at $1.25, through the Clinton Research Labs., 16 Clinton St., Brooklyn 1, N. Y.

VERSATITLER, a product of Phylard Mfg. Co., P. O. Box 464, Canoga Park, Calif., contains 150 formed plastic letters, one inch high and a quarter inch thick, a clear title board for "see-through" titling, a compartmented box, a supply of pressure-sensitive adhesive, and instructions for producing titles for both slides and movies. Price is $6.95.

DELUXE SERIES 8 CARRYING CASE is announced by Bell & Howell Company, 7100 McCormick Road, Chicago 45, for their 8-mm matched camera sets. The case is provided free of charge for both Wilshire 8-mm and Monterey 8-mm outfits, which include camera, leather camera case, light for indoor movies, 2½-time telephoto attachment, and filter holder with retaining ring. The Wilshire outfit is priced at $89.95 and the Monterey $99.85.

BABY LOCKS are designed to keep a child seated safely in a high chair during portrait sittings. Since it is not a body harness, chair back can be removed. Price is $1 and manufacturer is Baby Locks, 312 Washington St., Westfield, N. J.

SUSSEX CHEMICAL CORP., Newton, N. J., is the new name of Harvey Photochemicals, Inc., manufacturers of fine-grain 777 Panthermic Developer. Soon, a new line of photographic fixers, hardeners, toners, and other chemicals will be available.

ELECTRIC MIXERS for mixing photographic chemicals in water are announced by E. J. Holloway, Jr., Dept. P-10, 5126 Norwaldo, Indianapolis, Ind. Impeller shafts of up to 42-in. (for deep tanks) may be used with live-rubber suspension racks. Standard Mixer for mixing quantities up to five gal has two interchangeable shafts and is priced at $34.50. Another Standard, for quantities one gal and under is $29.50. The Master Mixer for up to 48 gal comes with a 1/30 hp fan cooled a-c motor and is priced at $52.50. More information available.—►

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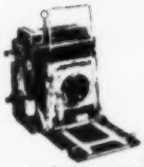
The House of Famous Brand Names

BUDGET TERMS

As low as 10% down

TRADE UP TO A LEICA M3

Leica M3 with Summarit f/1.5		$488.00
Leica M3 with Summicron f/2 lens		447.00
Leica M3 with f/3.5 Elmar lens		348.00
Leica M-3 Body		288.00
Leica IF body, built-in flash		64.00
Leica IIF body, built-in flash		120.00
Leica IIIF body, built-in flash self-timer		180.00
Leica IIF with f/3.5 Elmar		177.00
Leica IIIF with f/2 Summicron		336.00
	M-3	Standard
35mm Summaron f/3.5	$ 99.00	$ 96.00
Fuji 35mm f/2 W.A.		179.50
Fuji 50mm f/1.2		299.50
50mm Elmar, ctd. f/3.5	80.00	57.00
50mm Summarit, f/1.5	180.00	177.00
50mm Summicron f/2	159.00	156.00
85mm Summarex, f/1.5, Chrome		360.00
90mm Elmar f/4, Chrome	93.00	90.00
90mm Elmar f/4, Collaps. mt.	150.00	
125mm Hektor, f/2.5		147.00
135mm Hektor, Chrm., f/4.5	141.00	135.00
135mm Hektor sht. mtd.	121.50	120.00
Leica Meter	30.00	17.50
200mm Telyt f/4.5		156.00
400mm Telyt, f/5		450.00
Leica reflex housing		102.00
Leica Flash Gun		24.00
Stereo Outfit for Leica	297.00	294.00



1956 PACEMAKER GRAPHIC OUTFITS

All brand new, latest models, with factory guarantee! Includes: • Graflok back • Exfalite screen • new Graphic coupled rangefinder with Rangelite and automatic parallax viewfinder • new full image wire finder • Graflite 3 cell flash gun • deluxe case • film pack adapter • roll film holder • 6 cut film holders • adapter ring • sunshade • 4 filters. Prices below include all this extra equipment! Easy payments available!

Size	Coated Lens in Shutter	Speed Graphic	Crown Graphic
2¼ x 3¼	101mm Ektar f/4.5 (1/800 sec.)	$338	$300
	105mm Tessar f/3.5	355	306
	105mm Ektar f/3.7	343	294
4 x 5	127mm Ektar f/4.7	354	305
	135mm Schneider Xenar f/4.7	337	291
	135mm Schneider Xenar f/3.8	388	344
	135mm Optar f/4.7	354	305
	135mm Tessar f/4.5	378	326
	150mm Schneider Xenar f/4.5	381	334
	150mm Tessar f/4.5	381	334
	150mm Tessar f/3.5	448	400
	150mm Schneider Xenotar f/2.8	568	524
	152mm Ektar f/4.5	371	327

New Graphic rangefinder is manufactured for 4 x 5 cameras only. 2¼ x 3¼ outfits are supplied with Kalart coupled rangefinder.

TRADE UP!

YOUR PRESENT CAMERA IS WORTH MONEY AT BROOKS. Take advantage of these buys or write us what you want, what you have to trade:

EXAKTA VX—your old model VX and $48.50
RETINA IIIC—your Retina IIA and $79.50
CONTAX IIA or IIIA—your Contax IIA or IIIA X Sync and $69.50
ROLLEIFLEX f/3.5—your old Rollei f/3.5 MX and $66
ROLLEICORD V—your Rolleicord IV and $49.50
NIKON S2—your old Nikon S and $109.50

All Prices Subject to Examination of your Equipment

NEW—DISCONTINUED 1954 MODELS

	Reg.	NOW
New VX Exakta w/f/2.8 Preset Tessar		$179.00
New VX Exakta with f/3.5 Tessar lens		149.00
Exakta penta prism w/rf	85.00	38.95
Praktica FX f/1.9 preset Primoplan	159.50	78.95
Flexaret Synch. f/3.5	99.50	48.95
Ditto Camera f/3.5	99.50	48.00
105mm Ditto Telephoto	39.50	29.95
Rolleicord IV with f/3.5 lens		98.50
Bolsey B2 f/3.2 lens	56.50	39.95
Bolsey B2 f/3.2 with case and flash	69.50	45.95
Bolsey C reflex f/3.2 lens	89.50	40.50
Bolsey C f/3.2 with case and flash		59.95
Contax IIA f/2 X. synch.	336.00	228.00
Contax IIIA f/1.5 X. synch.	412.00	298.00
Super Ikonta A f/3.5 Tessar X. synch.	99.00	69.00
Super Ikonta B f/2.8 Tessar X. synch.	139.00	99.00
Nikon 1954 model, w/f/1.4 Nikkor	299.50	189.00
Robot Star f/1.9 lens	249.00	99.00

CONTAX D

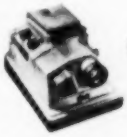
Contax D w/f/2.8 preset Tessar $94.95
Contax D w/f/2 preset Zeiss $124.95
Eveready case $ 12.00
Macro-Kilar 40mm Model D, foc. infinity to 2"—f/3.5 $114.95
Model E, same as above, inf. to 4" 135mm Albinar f/4.5 $29.95

PRAKTICA

Praktica FX f/1.9 preset Meyer $78.95
Praktica FX f/2.8 preset Tessar $70.95
Case 8.95

NEW ARRIFLEX 16

The only 16mm camera providing through-the-lens focusing and viewing during exposure, electric motor drive. Matte box, cables $1690.00
1:1.5 Xenogon W.A. f/1.9 290.00
16mm Xenon f/1.9 lens 170.00
25mm Xenon f/1.5 lens 170.00
50mm Xenon f/2 175.00
75mm Xenon f/2 lens 200.00
Zoomar 1" to 3" f/2.8 575.00
Battery 45.00
400' mag. 140.00
Arriflex 35mm Basic Camera $1675.00



REVERE 888

Fully auto 500-watt slide projector with more wanted features than any other on the market. Changes slides automatically, fast, medium or slow speeds, built-in pointer, iris fade lever, fast f/3.5 lens. Many other features $119.50
REVERE 555—Auto-mag 2 x 2 500-W $79.50
REVERE 552—Same features "555" 300-w $69.50

SWEDISH HASSELBLAD 1000F

2¼" x 2¼" single lens Reflex Camera interchangeable roll film magazines, automatic shutter setting $379.50
New extreme wide angle Hasselblad w. 38mm Biogon f/4.5 $489.50
Finder 49.50
Hasselblad Bellows for closeup work $115.00

Lenses:

135mm Zeiss Sonnar lens f/3.5 $279.50
250mm Sonnar f/5.6 $299.50
Zeiss W.A. Distagon f/5.6, with case $189.50
150mm f/3.5 Kilar lens $119.95
300mm f/5.6 Kilar lens $149.95

1956 ROLLEIFLEX AND ROLLEICORD

w/Tessar f/3.5 lens $232.50
w/Xenar f/3.5 lens 217.50
Rolleiflex 2.8D w/Schneider Xenotar f/2.8 lens $281.50
Rolleicord V w/Xenar f/3.5 lens, full synch. light value $134.95
Case for 2.8D 18.00
Case for 3.5 17.00
Rollei Flash Gun 29.95

LINHOF

2¼ x 3¼ CAMERA — Complete 3 Lens Outfit. Super Technika 2¼ x 3¼ Camera, 65mm f/6.8 W. A. Angulon Lens, 105mm f/3.5 Schneider Xenar Normal Lens, 180mm f/5.5 Tele-Xenar Telephoto Lens. All in full synch. Compur Rapid Shutter to 1/500 sec. All lenses coupled to rangefinder $569.90
Same as above, with 105mm f/2.8 Xenotar, W.A. and Telephoto $663.70

LINHOF "23" SUPER TECHNIKA SPECIAL—All Linhof features. With 100mm f/2.8 Planar; 53mm f/4.5 Biogon; 180mm f/4.8 Sonnar $1245.00
4 x 5 Linhof with Multifocus rangefinder and 6" f/4.5 Apo Lanthar $449.75
4 x 5 Linhof with Multifocus rangefinder and sports-finder, lensboard, scale and cam (without lens) $329.75

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BOLEX H-16 SUPREME

Bolex H-8 Leader with Lytar coated f/1.9 lens $259.50
Bolex H-8 De Luxe with Switar coated f/1.5 lens $438.25
Bolex H-16 Leader with Lytar coated f/1.9 lens $284.50
Bolex H-16 Supreme w/Lytar coated f/1.9 lens $304.00
Bolex H-16 Supreme w. Switar coated f/1.4 lens $510.00
Bolex H-16 Supreme with Switar coated 1:1.4 lens, Switar 16mm coated f/1.8 lens, Switar 50mm coated f/1.4 lens and deluxe H-1 case complete $779.00
Bolex C-8 w/Lytar ctd. f/2.5 lens $ 89.95
Bolex C-8 w/Lytar ctd. f/1.9 lens 129.95
Bolex B-8 w/Tyar ctd. f/2.8 lens 119.50
Bolex B-8 w/Lytar ctd. f/1.9 lens 169.50
Bolex B-8 w/Switar ctd. f/1.5 lens and Tyar 1½" (telephoto ctd. f/2.8 lens) $274.50
Bolex Electric Camera Drive 89.50
Bolex Tripod 69.50
Bolex Titler and Special Effects Kit 299.50
Bolex Rockover 27.50
Bolex M-8 Projector with case 149.50
Bolex G-8mm 16mm Projector 328.50
Pan Cinor Zoom coated f/2.8 lens (for 8mm) $149.50
Pan Cinor Zoom coated f/2.8 lens (for 16mm) $449.50
Pan Cinor w/case 17½ to 70mm thru lens view $349.50
Switar 16mm f/1.8 w/a 99.50
Switar 50mm f/1.4 166.00

ALPA VII

35mm Reflex

Automatic lens $429.00 with Xenon F:1.9

- Built in Multifocal viewfinder
- Prism reflex and rangefinder focusing
- Single knob for winding and shutter setting
- Speeds from 1 to 1/000
- Built in flash and strobe synch.

ALPA LENSES:

28mm Retrofocus f/3.5 W.A.	$139.00
38mm Old Delft f/3.5 W.A.	89.00
40mm Macro-Kilar f/3.5	89.95
135mm Old Delft f/3.2 tele	129.00
180mm Old Delft f/4.5 tele	149.00
300mm Tele-Kilar f/5.6 tele	179.00

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I agree to pay $ ..... monthly for ..... months until merchandise is paid for.
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FILM WHOLESALERS!

ALL FILM ABSOLUTELY SAFE & RELIABLE

FRESH COLOR FILM

This 1957 dated film is in its original sealed package fully guaranteed by the manufacturer. Day or Tung. Price includes processing & mounting (35mm). MINIMUM ORDER—3 Rolls.

Size.	Kodachrome	McGregor Color		Vitacolor
8mm x 25' dble. roll	$2.90	$2.40	1957 DATE	$2.30
8mm x 25' dble. mag.	3.60	3.50		3.50
16mm x 50' mag.	9.40	9.35		5.25
16mm x 100' roll	8.40	8.85		6.75
35mm x 20 exp.	2.60	1.85		1.79
35mm x 36 exp.	3.85	2.25		3 for 6.50
35mm x 12 exp.		6 for $6		

FRESH MOVIE FILM

1957 dated, fast, fine grain, panchromatic ASA 50. Prices include new fast processing service.

8mm x 25' dble. roll $1.10
8mm x 100' Bolex dble. roll 3.50
16mm x 50' mag. 1.75
16mm x 100' roll Ansco 2.75
16mm x 100' 2.50
16mm x 100' Kodak Plus X 2.95
16mm x 50' roll, Plus X 1.65
8mm Mag. B & W 2.00
16mm x 50' mag. E.K. X or XX 2.25

BUY SIX ... GET ONE EXTRA FREE

KODAK 16mm MOVIE

Kodak Processing included

KODACHROME 16mm x 100' Day. or Tung. $5.95
KODACHROME 16mm x 50' mag. '55 date 4.25
O.D. Kodachrome 16mm x 100' Day. or Tung. 2.95
Super X or XX 16mm x 50' magazine 2.75

HIGH SPEED MOVIE

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Winter Night

(Continued from page 73)

Underexposure in shooting this daylight scene, obtained by exposing for shadow areas, has heightened the low-key, wintry effect and sharply contrasted the resulting semi-silhouetted figures of skating and sledding youngsters against the brilliant backlighting provided by the sun and its reflection. Rolleiflex, G filter, Super-XX film, 1/50 sec at f/16.

ping across the frozen sands and around this lighthouse standing lonely sentry at Pemaquid Point, Maine. Here is a winter mood he successfully emphasized by photographing at very late dusk, just before the last faint light had faded. He exposed for two to three seconds at f/8 in a situation that normally would have called for a much longer exposure because of the very limited amount of light. This exposure, however, did obtain some detail in shadow areas, keeping these portions of the picture from being a complete silhouette. Another result of his deliberate underexposure was to record the lighthouse beacon in bright contrast to the otherwise prevailing gloom.

Printing played an important role in the final effect. The print was made purposely low key in keeping with the technique of underexposure, yet not so black as to completely destroy the wide range of dark, gray tones. The highlight from the lighthouse beacon was purposely held back to make it stand out even more strongly.

Ruohomaa shot on Super-XX film, with his Rolleiflex on a tripod for absolute steadiness during the long exposure.

Brightly lighted daytime scenes also offer a challenge to mood-maker Ruohomaa, who deliberately underexposes and prints down to create a low-key, wintry effect. This technique was applied to the accompanying shot of youngsters skating and sleigh-riding on a frozen pond on a cold but bright winter day. In addition to underexposing and printing down, he added a G (orange) filter to his lens to darken the sky and further emphasize the characteristic bleak cheerlessness of even winter's sunniest days.—

San Francisco Weekend

(Continued from page 63)

creating a *great* show than it was with drawing in new photographers. The idea of working together was primary. The theme exhibit was viewed as a beginning in this direction, not as an end-all. In keeping with the aims of a co-operative project the majority, by secret ballot, elected a selection committee of five photographers representing different views and approaches toward their craft. The following were elected: *Life* photographer Nat Farbman, Imogen Cunningham, Bill Heick (industrial), Charles Wong, (documentary), and Pirkle Jones of the California School of Fine Arts.

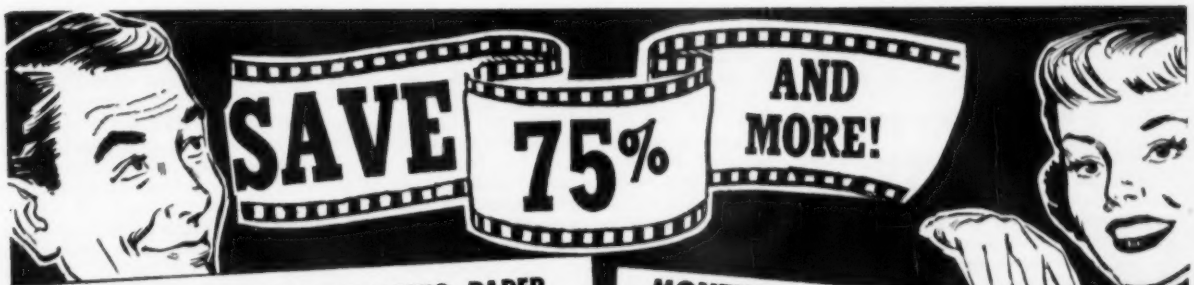
If there had been time to think, perhaps it would have been a painful wait for the dreamers of this adventure. But everyone was too busy to gamble on the outcome. And when the deadline for entries was reached, the response went beyond their greatest expectations. A stack of over 500 photographs from 50 Bay Area photographers (the big names mixed with the no-names) waited to be sorted. Why did so many photographers respond to this challenge? It wasn't the money, because there were no prizes, no rewards. Was it the theme itself, or the ideas behind the theme?

One commercial photographer who had said "group efforts never succeed" and

doubted if he would participate in the

been taken by an amateur who had been

ment and even active participation. While



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8x10	Contact	SWGL	F0, F2 F3	100	2.75
10x10	Contact	SWSM	1, 3	100	2.00
10x10	Contact Ad Type	LWSM	3, 4, 5	250	2.50
10x20	Contact	SWSM	1,2,3,4	100	3.20
10x10	Contact	DW SGL	1,2,3,4	250	4.75

SW GL Single Weight Glossy
SW SM Single Weight Semi-matte
DW SM Double Weight Semi-matte
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8x10	Brovira	SWGL	3	100	3.29
8x10	Halobrome	DWSM	EE3	100	3.89
8x10	Enlarging	SWSM	2, 3, 4	100	2.69
11x14	Halobrome	SWGL	F4	50	2.79
11x14	Halobrome	DWM	1,2,3,4	50	3.50
11x14	Kodabromide	DWGL	F4	50	3.50
11x14	Brovira	DWGL	1	100	3.95
11x14	Brovira	DWSM	FF1	100	3.95
11x14	Enlarging	SWGL	EE1	50	2.50
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doubted if he would participate in the project, came through with 35 proof prints. He never explained the reason for his about-face, but in the course of a single weekend he admittedly had traversed the city end to end, from the dawn hours until after midnight.

Another photographer, known nationally for her exquisite still-life and studio studies, said she had never done spontaneous photography of this kind. But she was up early that August morning, and she walked through San Francisco hour after hour. She forgot to eat, forgot a dinner engagement, and was so moved by her experience that she became one of the group's most ardent supporters.

One amateur photographer, experiencing her first exhibit challenge, chose a difficult and unusual subject. Frustrated because of lack of time and experience, she nevertheless turned in 15 prints at deadline time, little expecting that even one of her pictures would be chosen. The jury picked 6!

It was not an easy task to sort, select, and edit this material, but on one thing the jury unanimously agreed: *San Francisco Weekend* was different, spontaneous, vital. The number of excellent photographs from heretofore unknowns was surprising. After two intensive nights of selection, 107 prints representing 28 photographers had been chosen for exhibit at the San Francisco Art Festival.

Seventeen of these 28 photographers were working professionals. The rest included students, amateurs, and part-time professionals. Several prints chosen had been taken by an amateur who had been working with a camera only a few months!

When the photographers were notified of the selection committee's decision, they were asked to make final prints to specified sizes. One photographer was asked to enlarge his photograph to 8 feet in width. Another print was to be five feet high. Still others were a more conventional 16 x 20 and 8 x 10. The photographs seemed to group themselves naturally into areas: beaches, parks, and playgrounds; street scenes, architecture, religion, transportation, etc. Barbara Zrnich, the young artist who was at the first meeting, helped to make a layout which carried through the theme as expressed in the photographs.

Although each photographer was responsible for printing and mounting his own photographs, the larger prints posed a problem. One member of the group purchased 2 rolls of 40" paper. Another promoted mounting board and masonite panels. When additional money was needed, there was always someone (unnamed here because there were so many) who came through. When it was announced that people might be needed for mounting, spotting, and writing of text, twelve photographers showed up, each fitting naturally into some task. They worked together until the job was done, long after midnight. No one person seemed to give the orders—yet work went ahead smoothly and rapidly.

Something grew out of the *Weekend* experience that did not go on display. The activity around the show stimulated other photographers into discussion, argument, and even active participation. While many waited for the outcome before taking definite steps toward joining the group, they were nevertheless enthusiastic for its success. Several felt that *Weekend* was a challenge to other organizations to raise the level of their own contributions, and it was generally acknowledged at the Festival that the separate exhibits of the Northern California Council of Camera Clubs and the Northern California Photographers Association were outstanding.

Incidentally, *San Francisco Weekend* was the only prejuried exhibit at the Art Festival. This city-sponsored event is open to all artists, regardless of esthetic criteria. Group shows are often limited by their own members, but there is no official selective process. After the over-all Festival exhibit is hung, however, a panel of jurors selects the most outstanding works of art for special awards. The jury is invited by the city on the recommendations of its artists. Usually there is a six-man panel, three representing the fine arts (painting and sculpture) and three the applied arts (pottery, jewelry, weaving). This year the city appropriated $2,000 in prizes for the purchase of outstanding works, to be displayed in public buildings. Of this sum, $1,200 was to be spent in the fine arts, $650 in the applied arts, and the remaining $150 could go either way. Because of the unanticipated response of the photographers this year, $50 of this reserve money was earmarked for purchase of photographs and a 3-man photography panel was added to the jury. These photography jurors were: industrial designer Jo Sinel, artist Charles Mattox, and photographer Milton Halberstadt.

On September 14, the day before the Festival opened to the public, the nine-man jury was left alone in the Civic Auditorium among 3,000 works of art! But the impact of *San Francisco Weekend* was immediate. The display, mounted on plywood panels that stood accordion-shaped in a corridor of the auditorium, was almost at once considered for an Award of Merit. But the jury went further. Although it is unusual for the jury to recommend purchase of *an entire exhibit*, this is exactly what they wanted to do. Unanimously they decided to throw the full $150 reserve fund toward that purchase. The Applied Arts panel even added $65 from their own limited funds. But *San Francisco Weekend* was valued at $2,500. Contrary to precedent, the executive committee of Bay Area Photographers was contacted and the problem explained. Within an hour, the committee had reached eighteen of their twenty-eight photographers and all had agreed to "sell" the exhibit to the city for a token $215 on condition that the show get the widest circulation possible. The jury then unanimously recommended *Weekend* for the coveted Award of Merit and purchase by the city—a recommendation which has since been approved and carried out. And, for the first time in many years, three photographers exhibiting independently also received Awards of Merit.

Juror Jo Sinel remarked: "We (the jurors) all had the same basic reaction to *San Francisco Weekend*. It was an exciting visual pattern, a well-coördinated,

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8x10	DW Resisto Rapid	#2	100 sh.	4.00
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well-presented effort, even to the little swatches of comment. I would like to think of it as a beginning, not an end."

When the Festival doors opened to the public next day, *San Francisco Weekend* was a stopper! Art critic Alfred Frankenstein, who viewed the exhibit while "dense mobs clogged around it," said that the show was "a magnificent, vivid cross section of contemporary city life. It exemplified the city entertaining itself, the city resting, the city feeding and relaxing and preparing for work to come. It accomplished on a small scale what the famous Museum of Modern Art show *The Family of Man* accomplished on a larger scale—one hopes that the collection will eventually be displayed where it can really be seen."

Ansel Adams, who referred to the show as a "breath of fresh air" wrote: "On visiting the show . . . I was overcome with surprise and delight at the evidence of the collective efforts of your group. I have always been a staunch supporter of the project concept in photography, and I have never experienced such a handsome justification of my beliefs! . . .

"The show is a handsome presentation of good photography and good 'seeing.' . . . There is no presumption, no striving for theatrical effects. . . .There is no evidence of personal axes to grind, 'prophet' complexes, or self-conscious 'documentary' mannerisms. I cannot tell you how much this exhibit excites and pleases me, and how grateful I am to you all that you brought it into being."

But it was the public who liked *Weekend* most. For four days and nights the people crowded around it and the reactions were something that should have been recorded. It was not difficult to surmise that it was the most popular exhibit at the Festival. As one person put it: "San Franciscans who looked at the exhibit enjoyed it because they looked at themselves."

The success of *Weekend* was not lost on its photographers. Enthusiasm ran so high in the group that it became a source of amusement to see at least two photographers standing near the display stands, hours on end, pretending a casualness that wasn't there, and taking in all the laudatory comments of the viewers.

The camera clubs and professional organizations made no official comment, yet *Weekend* was discussed, praised, and written about in bulletins and neighborhood sheets in the community. If there was any adverse criticism among club members, no amount of prying has dug it out. Here are some comments, repeated several times, by various photographers outside the *Weekend* group.

"The pictures really live. They have a freshness and spontaneity which we seem to have lost."

"We're primarily interested in pictorial photography—the individual picture telling the whole story. But you have done a wonderful job with your show and we wish you continued success."

"I still prefer to remain a lone wolf in photography, but no one person could have photographed San Francisco as you did. Through the important use of difference in approach, you have come closer to capturing the essence of San Francisco than anything I have seen."

When the Art Festival closed, Bay Area Photographers called a meeting and this time *sixty* photographers came! The group was elated. The enthusiastic reaction of their co-workers summed up to them, more than any other action, the success of their experiment.

The meeting immediately got down to business. *Weekend* was discussed and

Coffee break for some of members of executive council of Bay Area Photographers doesn't prevent them from continuing discussion of their upcoming show, *San Francisco Discovery*. Left to right, they are Pirkle Jones, Paul Hassell, Gini Stoll, Chic Lloyd, Jaqueline Paul, Jerry Stoll. Phiz Mozesson took the shot.

evaluated. The simplicity and spontaneity of the show, the intensity of its appeal, and the level of its craftsmanship were applauded. The photographers were aware of its weaknesses, too—the gaps in coverage of city life on a single weekend, a certain lack of continuity in the theme . . . but this was in the nature of the experiment. With the *Family of Man* show, the theme already had been established and the photographs spanned many years of achievement. With *Weekend*, the theme grew out of the spontaneous experiences of its many photographers. There was little time to plan—the photographer responded to the immediacy of the situation and in doing so, he caught (and sometimes failed to catch) the essence of city life.

But *Weekend* was behind them. Scheduled to tour the city's public buildings and schools, with plans under way to take it on national tour eventually, it could stand on its own now. Bay Area Photographers wanted to move ahead and discuss the next project.

Elected to carry forward the aims and activities of the organization was a seven-person executive council (later expanded to 10). It is significant that among those chosen were the people primarily responsible for the success of *San Francisco Weekend*. They included, as chairman, Gini Stoll, at whose tiny studio the idea was born; Jaqueline Paul, who first suggested a theme show; and many others whose understanding and tireless efforts carried the theme show along.

Without delay the organization plunged into a discussion of the next exhibit.

"We have only begun to explore our community," one photographer said, and it was not surprising that San Francisco was again chosen as a theme subject.

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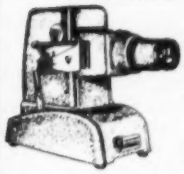

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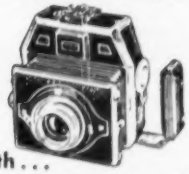

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San Francisco Discovery became the working title of the new project. Some photographers have expressed it this way: "Discovery refers to the camera's rediscovery of San Francisco, its architecture, its movement, its total humanity." Others can't find words, but seek out its alleys, winding streets, and freeways; its racial and interracial makeup; and those aspects which make San Francisco unique as well as typical of city life anywhere. Again, the theme will grow from the collective experiences of the photographers, but the addition of time (the exhibit will be held in April), the interchange of ideas and attempt at cooperative exploration, promise a fine show.

One of the most vital activities of Bay Area Photographers is its monthly workshop sessions. Here, photographers bring their work-in-progress. Although many members still prefer to work alone, a few are beginning to tackle projects together. These teams are coming through with exciting material which is shown, discussed, and evaluated by the group. The informal workshops are a stimulus to the new photographer who has an opportunity to show his work to a critical and helpful audience. It's also a good experience for the "name" photographer who finds this unsophisticated and fresh approach to photography a welcome relief to the salon-type discussions. The workshops, just getting under way, have evolved no definite pattern, but smaller projects are being undertaken and field trips are planned as well as technical talks and other related activities.

Bay Area Photographers as an organization is still too new, the project too short a time under way, for any early pronouncements of success or failure. No one doubts that there eventually will be a simmering down and many photographers will drop out. But the serious photographers who have the desire to move ahead will remain. To them *San Francisco Weekend* was an experimental project which captured the imagination of its photographers and its audiences. It succeeded in lifting significant numbers of photographers out of the doldrums. They believe that Bay Area Photographers is an extension of this experiment which will also succeed because it has a dynamism that no other photographic experience offers.—▶

Guide to Lighting Equipment

(*Continued from page 75*)

ard No. 1, No. 2, and No. 4 photofloods, and the pear-shaped 250- and 500-watt 3200 K lamps. The chief advantage of this type is economy of replacement. Also, in an efficient reflector their light output is somewhat better than those of comparable wattage having built-in reflectors.

Lamps with built-in reflectors offer the advantages of simplicity and easy portability. Manufacturers designate these as reflector floods or reflector spots, according to the use for which they are intended. Reflector floods give soft, even light over an angle roughly equal to that of a regular flood in a good reflector. Reflector spots are of two kinds: narrow-beam, and the newer wide-beam. The narrow-beam lamps concentrate in a small area about seven times the light intensity of a reflector flood. Such a potent light source must be used with great accuracy; slight subject movement can upset the entire lighting scheme.

The new wider-beam spots, like the 34 R4, are basically designed for movies, but are also useful for stills when a wider field of intense light is desired. Four of them can be used together on a light-bar with ordinary household fusing, whereas only three regular 500-watt floods or spots could be safely used at once.

3200 K reflector lamps are available only as floods; there is no spot lamp.

Reflector spots are often used for backlighting and hair lighting, or to accent some portion of the scene. They are also useful when floods cannot be placed close enough to the subject to permit a short exposure. They are an inexpensive substitute for regular spotlights, but the photographer does not have as much control over light concentration, since they cannot be focused.

When using reflector spots for color, make sure the area lit by them is not too strongly illuminated. Color film has limited latitude, and such an overlighted area would be burned out if the exposure were correct for the rest of the picture.

Choice of Accessories

Clamp-on devices. These are handy for attaching a lamp to a chair, table, door, mantelpiece, or other convenient support. The device can also be placed on the floor, when a low light source is desired. There are special "floor lamps" available for this purpose. Lamps can also be clamped to chair legs, tripod legs, or the lower part of lamp stands for low-angle lighting; this is especially helpful when light stands cannot be lowered to the desired position.

Light stands. These enable the photographer to vary the height and position of lamps. They may be used to hold floodlamps in reflectors, spotlights, mushroom-type lamps, and a variety of other equipment.

Light stands with single reflectors are generally used in portraiture and commercial photography. Here one lamp is generally used as the main light to create the over-all lighting effect, and other similar units are used to control depth of

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shadows and to light backgrounds and other subject areas.

Deluxe light stands are fitted with set-screws that don't come off, extension rods that do not come out, and are fitted with rubber feet to prevent marring of floors. Stands vary in height from about six to ten feet.

Double-light stands. Two-light units are generally used in situations where adequate light must be spread over relatively large areas. In motion-picture work, where this sort of broad coverage is often demanded, several units of this type are sometimes spaced at intervals along the path of action, as for example when a bride and groom are to be photographed walking down the aisle.

Some two-light units are provided with high-low switches. Focusing and placement of the lights is done at the "low" position, to prolong lamp life, and to prepare the subject for the brighter light that will follow. The actual shooting is done with the switch in the "high" position.

Fresnel-type spotlight. Spotlights are used to place a concentrated beam exactly where it is wanted. There is usually little spill-over onto backgrounds or other parts of the picture area. This is especially important in color work, when the background or other areas are bathed in colored light; any spill-over of white or different-colored light might change or dilute the color effect.

Focusing a spotlight changes the beam from sharp to soft, varying the quality of shadows and the intensity of highlights. If the texture of a subject is to be emphasized, spotlighting will do an excellent job. The Fresnel spot has a lens with concentric ridges which refract and control the light.

Condenser spotlights. These are used in much the same manner as spots of the Fresnel type; focusing produces hard or soft shadow effects. However, the condenser spot can generally be focused to produce harder, more contrasty lighting than a Fresnel spot.

Snoots and spotlight attachments. These semi-conical devices are placed in front of the spotlight lens to concentrate the beam into a very small area. There are also metal cutouts for projecting shapes and patterns of light on backgrounds. Diffusers and colored gelatins for special effects can also be mounted in front of the lens.

Miniature spotlights. The chief use for these little keg-shaped lights is to throw additional light on part of a subject, like the hair in a portrait, or to bring out detail and texture. When the main light source is not too strong, the miniature spot can be used for backlighting effects.

Bar-lights. They are used principally in movie making, but also by some photographers for stills. They consist of two or more mushroom-type lamps mounted on a bar or on flexible tubing, with a tripod screw for mounting the camera in the center. In this way, whenever camera position is changed, the whole lighting scheme moves with it and remains constant. The units with flexible tubing, as well as some bars with elbow joints, permit a variety of lighting effects aside from straight front on-camera illumination.

LAMP SPECIFICATIONS

These are the most commonly used photographic lamps, listed under designations generally used by all manufacturers. (Some companies apply slightly different names to certain lamps.)

Type	Watts	Life	Amps	Shape
3400 K				
No. 1	250	3	2½	standard
No. 2	500	6	5	standard
No. 4	1,000	10	10	standard
34 R4	375	4	3¾	mushroom
RFL-2	500	6	5	mushroom
RSP-2	500	6	5	mushroom (spot)
3200 K				
No. 1	250	20	2½	standard
No. 2	500	60	5	standard
T-20	500	50	5	projector
32 R7	500	6	5	mushroom
R 32	375	15	3¾	mushroom

Two-light units are adequate for black-and-white shooting, or for color up to a distance of six or seven feet. For color beyond that distance, a four-light unit is desirable. Better quality bar-lights incorporate high-low switches, and fuses to protect household fusing in case of overload or short circuit.

Barn doors. These aptly named "blinders" attach to the front rim of reflectors or spotlight housings, to limit the field of light, keeping it off backgrounds or out of other picture areas. They also keep the light out of the photographer's eyes and the camera lens, making it easier for him to focus and direct the model, and preventing light flare.

Pan-shaped reflectors. When used with frosted floodlamps, these provide a broad, even field of light. Their upright sockets permit the use of clear T-type lamps, which produce distinct shadow outlines and strong highlight reflections, and help to emphasize texture.

Booms. These are stands with counterweighted extension arms, used to place and hold lamps at precise positions. Either mushroom-shaped reflector lamps or regular floods in reflectors can be mounted on them. They offer the surest and easiest way of placing a light directly above a subject, yet keeping the stand out of the

FILTERS REQUIRED

	3400 K Photoflood	3200 K Pro. Studio
TUNGSTEN FILMS		
Ektachrome & Kodachrome Type F	82A	82C
Ektachrome Type B (sheet)	81A	none
Ektacolor Type B (sheet)	81A	none
Kodacolor Universal Roll (balanced for daylight & clear flash)	82A	82C
DAYLIGHT FILMS		
(The use of a blue filter plus tungsten-type film is not recommended. Color rendition is only fair, and exposures are excessively long.)		
Anscochrome	10	10
Ektachrome	not recommended	
Kodachrome	80A	80A plus 82A
Ektachrome (sheet)	not recommended	

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picture area. Booms can also be used with flashbulbs and electronic flash units.

Diffusers. The usual diffusing mediums are spun glass, cloth, or tracing cloth. With cloth, care must be taken that the diffuser does not become overheated; even if fire does not result, the heat can discolor the cloth, cutting down its light transmission and changing its color quality. Spun glass is generally preferable, especially for color photography, since it will neither burn nor discolor. The soft light provided by diffused floods is especially desired for portraits, and other applications where an even field of light is needed. Shadows are soft and less definite in outline than with bare lamps. Diffusers require one half to one stop extra exposure.

Cardboard reflectors. These are useful for throwing extra light into shadows—light that is bounced back from the main source. They can be made from photo-mounting boards or other heavy cardboard. Efficiency can be increased by covering the reflecting surface with aluminum foil or by painting with aluminum paint. Colored cards can often be used to create interesting effects in color photography.

To mount a cardboard reflector on a light stand or tripod, use a screw stud fitted with a small ball-and-socket head. Punch a hole in the cardboard and place it over the head screw, securing it with a ¼ x 20 nut or a camera case retaining screw.—▶

Kodak's New Color Print Papers

(*Continued from page 52*)

red and magenta color-compensating filters. The best result was obtained from combining a CC-10R with a CC-70M (the latter obtained by using a CC-50M with a CC-20M).

In order to clear up some of the confusion surrounding this business of subtractive filtering, let's imagine that we've got to make a black-and-white print with an enlarger whose lens has no diaphragm and which has been adjusted to give only one unvarying exposure interval. Now, we make a first test print and it appears far too dark. What to do? One thing we could do would be to add a dark neutral density filter to the enlarger lamp-house. This would have the effect of reducing the intensity of the light striking the paper, and we would have a lighter print. The dark filter would then have an opposite effect upon the positive print.

A similar situation exists in making color prints. Each color filter has an opposite effect upon the print. If you throw in a red filter you add cyan to the print. Use a cyan filter and the print appears redder. Here's a simple table to tell the story:

If print has too much . . .	Add this color filter . . .	To make print appear more .
Magenta	Magenta	Green
Cyan	Cyan	Red
Yellow	Yellow	Blue
Blue	Blue	Yellow
Red	Red	Cyan
Green	Green	Magenta

Filtermanship becomes much more simple if we think of all filters in terms of their subtractive colors. This is how it works:

RED (absorbs blue and green) consists of: YELLOW (absorbs blue) plus MAGENTA (absorbs green).

GREEN (absorbs blue and red) consists of: YELLOW (absorbs blue) plus CYAN (absorbs red).

BLUE (absorbs green and red) consists of: MAGENTA (absorbs green) plus CYAN (absorbs red).

The use of color-compensating filters plays a tremendous part in making color prints. As a matter of fact, these colored sheets of gelatin are just as important as the color-printing paper and processing chemicals. This article unfortunately lacks sufficient space to cover this complex subject anywhere near thoroughly. For a very good treatment of this subject, however, we recommend the article in *Kodak Professional Notes*, Number 4, 1955.

Ideally, color-compensating filters should be located somewhere above the negative carrier in order not to affect print sharpness. Two good places are between the lamp and the top plano-convex condenser, as well as between the two convex sides of the condensers themselves. For our experiments we used Ansco Printon Foil filters in the 6½ x 6⅝-inch-sheets size to cover the diameter of our 4 x 5 enlarger head. To the best of our knowledge, Kodak color-compensating filters larger than 3x3 inches are currently available only on special order. However, the Ansco filters are graduated in the same series and by comparing results obtained from laying Kodak CC filters over the rear element of the enlarging lens with prints made by using the larger Ansco filters in the lamphouse, it is clear that they are interchangeable. Incidentally, laying the filters over the rear element of the lens is about the *worst* technique possible as sharpness is almost wholly destroyed.

Up to now we've discussed only the problems of exposing and filtering which we encountered. Now for the wet side of the process:

There are eleven steps in processing Type C paper prints, with total processing time per print running to 42 minutes. After the first four steps, which are development for 12 minutes, stop bath for 2 minutes, first fixing bath for 2 minutes, and a 2-minute wash in running water, it is safe to continue with normal room lighting. A safelight is available, but we did not use it in our tests.

Our first test runs were made using tray development. A minimum of four trays, or three trays and a print washer, are needed because the first four steps are performed in total darkness or with a very dim safelight. Working left to right the line-up is:

1. Developer.
2. Stop bath.
3. First fixing bath.

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Estimate and include postage — SWG — Single Weight Glossy DW SM — Double Weight Semi-matte

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In setting up these trays of solution it's a good idea to work backward and fill them in the order 4, 3, 2, 1 so that the possibility of contamination through splashing is minimized. Contamination is most easily caused by getting drops of the first fixing bath into the stop bath or developer. Of course, as the print moves from solution to solution, there will be a small amount of carry-over. As long as proper drainage is given, and the direction of the carry-over is from step to step, this is not important at all. Great care should be taken to see that this direction is never reversed.

Once the lights go on (after the 18th minute, when the print enters the bleach) you can get along with only two trays, and it's a good idea to retire the developer tray at this point.

Development is the most critical step in the processing of Type C prints. Temperature must be religiously controlled at 75 F, plus or minus only ½ degree. (The other solutions may vary from 73 to 77 F.) During development the print must remain completely submerged to avoid chemical fogging and uneven development. Tray development presented a problem because the prints curl very badly during the first four or five minutes of processing and keeping them completely submerged is a problem.

For this reason our last runs were made with development in a thin, one gallon 8 x 10 stainless steel tank. A normal 8 x 10 film hanger with perforated grooves is unsatisfactory for handling paper which buckles terrifically, and a special hanger was improvised from an ancient Kodak 2A hanger with four clips under spring tension holding the corners. An X-ray-type hanger with spring clips would have done as well, and two prints may be processed back-to-back in this manner if care is taken to slip a rod between prints, spreading them so that no chemical pockets are carried over to the next solution.

When a print from a normal color negative is seen after the fourth step in processing it appears almost completely blue with only a hint of other colors. This is because the blue layer is on top and while wet all the layers are semi-opaque. After the bleach (step 5) a little more of the color shows through, but the picture is still predominantly blue. The most disappointing thing is that almost nothing seems to be happening from the sixth through the eleventh and final processing step, after which 42 minutes have elapsed.

As a matter of fact, until it's dried a Type C print will always look like a bad try. But then, upon drying, all the layers become transparent and the color appears.

Type C prints may be dried on any conventional print dryer, but they must be dried face up without the belt or other cover. We made this mistake and had to throw away an otherwise perfectly good canvas dryer belt—the print just would not come off. After the face-up drying the print may be rewet and dried for a second time like any black-and-white print. Once the gelatin has hardened in the first drying it will never return to the same soft condition as in the processing stage. Rewetting and redrying seem advisable because the first drying gives a curly, wrinkled effect.

Type R Paper for Working from Positive Color Transparencies.

This paper is very similar to Ansco Printon and is designed to give acceptable-quality color prints from positive color transparencies for normal wallet snapshot purposes. It is not a high-quality paper, and neither the colors nor the image quality itself are nearly as good as the results obtained from Type C paper prints made from color-negative originals. Type R paper tends to be somewhat contrasty, but can give pleasing if not accurate results.

Handling during printing is similar to Printon, but the Type R paper is considerably slower. Processing is very much like the procedure we have described for the Type C paper except that Type R involves a reversal exposure, and it is permissible to agitate Type R by the familiar removal-and-drainage system used in processing sheet films.

Even with the understanding that our results from the Type R material would not match those obtained with the Type C paper, it must be stated that these results were disappointing, and the problems involved in attaining the best possible Type R print quality seem to be greater than those involved with the color-negative print paper. Whether these results and problems are inherent in the system or are due to emulsion variations or even the failure to develop suitable handling techniques remains to be seen. From a photofinisher's point of view it appears likely that Type R will become a worthy contender against Printon for the amateur snapshot color-printing trade.

The Three-Separation-Filter Technique in Exposing Type C Paper.

Our discussion of the dry side of printing with Type C paper was confined to our experience with the one-shot, white-light-and-color-compensating-filters system. This system seems to offer much to recommend it from an average amateur photographer's point of view, although it is apparent that optimum-quality Type C prints can best be made with the three-filter system.

In this system three successive exposures are made through a Red filter (Wratten No. 70), a Green filter (Wratten No. 61 and No. 16), and a Blue filter (Wratten No. 47B and No. 2B). The trouble is that unless an electronic Densichron meter with a photosensitive probe is used to measure the effect of each of the three exposures, a lot of time and money can go down the drain while trying to make the first decent print. The Densichron type instrument which is supplied by Kodak is a very beautiful machine, and sells for about $1,600. Any professional photofinisher going into Type C work would be very foolish to attempt it without one of these bulky gadgets, but it appears doubtful that many amateurs (and professionals, too, for that matter) north of Texas are going to make this sizeable investment.

CONCLUSIONS:

From our initial experiments with these two positive print materials it does seem obvious that the day when all of us will

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be able to make our own color prints in our own home darkrooms is not too far distant. The Type C paper is by far the more promising, not only in terms of color quality and image sharpness, but in ease of handling and processing as well. If this paper works out as well as we believe that it will within the foreseeable future, there is bound to be a parallel demand for more and better color-negative materials. Both papers seem to suffer from certain defects which must be chalked off as growing pains. At present, type R does not yield the image clarity of Ansco Printon, although its color values are superior. Both papers would be easier to handle if a waterproof back coating could be devised to keep water out of the paper base and reduce swelling and buckling. The day of home color printing is on its way, but it is not here yet. In the words of a Kodak Technical Representative speaking before a group of professional and press photographers: "Give the experts a year to work out all the problems, then go into it with their experience behind you." *Next year* came for the Brooklyn Dodgers. It will come for home color printing too.—

Touch Up Your Color Slides

(*Continued from page 47*)

POINTS TO AVOID

1. Do not apply a strong dye solution but build up colors gradually.
2. Do not allow fingers to get stained. The stains may come off while handling transparencies.
3. Do not use hot water to remove lacquer coating from Kodachrome. It will soften and damage the emulsion.
4. Always use wet cotton, otherwise particles of cotton fiber will stick to the film.
5. Do not apply brush too heavily as there is danger of scratching the emulsion.

color transparency you are working on.

Pour a small amount of dilute wetting agent solution, like Photo-Flo, into a small paper cup. The solution is made up of one part wetting agent to twenty parts water. Next, dissolve the color, making sure that the paper strip is removed from the color solution lest paper fibers be carried over to the film. Dip the brush in wetting-agent solution, then in color solution, and apply. The wetting agent prevents the color from streaking when applied.

MATERIALS LIST

1. Book of Kodak transparent water color stamps.
2. Number 3 spotting brush.
3. Absorbent cotton.
4. Wetting agent like Phot-Flo or Kwik-Wet.
5. Several waxed-paper cups such as Dixie, available from any grocer. One is used for fresh water, the other for cleaning your brush when changing from one color to another. Other cups are used for holding the dissolved colors.
6. Magnifying glass.
7. Light box. Can be improvised from an old cigar box (see illustration).
8. Opaque mask.

It is most important to use a very dilute color. The strength of the dye solution should be such that a brushful, spread on clear, white paper, is less dense than the area to be colored requires. Before applying the color to the film, it is a good practice to make two or three strokes on a piece of paper, to remove excess color and to shape the brush.

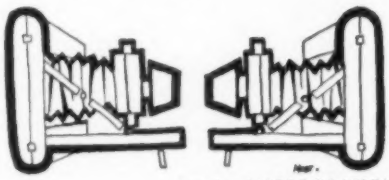
Use a magnifying glass when working with 35-mm transparencies. Build up your color gradually to a shade denser than is desired, then remove excess color with a damp wad of cotton until the desired shade is obtained. This will smooth out any unevenness that may have occurred during application.

When all the work is finished, the film can be dried by allowing it to remain on the light box for a few minutes. Bind the transparency in glass to prevent any damage to the emulsion.

HELPFUL HINTS

1. Always clean brush when using a new color.
2. To prevent unnecessary eyestrain, always place an opaque mask around transparency on light box.
3. If for any reason you wish to remove the color from the transparency entirely, soak it in running water for an hour.
4. To blend colors, either apply one color over the other or else mix colors before applying to the transparency.
5. If any color should run at the edges when applying color to a selected area, wipe with wet cotton immediately.
6. Spread colors evenly with a light back-and-forth motion of the brush.
7. To highlight pale skin tones, a very dilute solution of brilliant red may be used. It should be carefully blended into the basic flesh tones.
8. When using more than one color in a given area, allow first color to dry completely before applying second color, to avoid running of colors.

This method will work for all types of color film. For Ansco Color, E-2 Ektachrome, and Kodachrome, the dyes are applied to the emulsion side. However, only Kodachrome has protective lacquer, so the preliminary washing can be eliminated with the other films. Old-type Ektachrome should be retouched on the *base* side, not the emulsion side. If moisture should get on the emulsion side, the film will become opaque but will clear again when dried.—



How to Buy a Used Camera

(*Continued from page 43*)

has them. Of course, deep, sharp scratches *are* harmful, and you don't want anything to do with them. For this reason, check both *front and rear* elements of a lens. Although scratched rear elements are more rare, they do occur.

On helical focusing cameras, check the focusing ring (*see later text*). Be particularly careful of interchangeable lens mounts. With this type, always remove the lens, inspect the threads or bayonet fittings and re-insert the lens. Check for damaged threads; bent bayonet blades, and ease of operation. Be careful of a too-easy fit, as accuracy is destroyed by play in the mount.

Diaphragm

Set the diaphragm at either the smallest or widest aperture and work up or down slowly. The opening should always be circular. If you see any protrusions or irregularities in the shape of the opening one or more of the diaphragm leaves are out of their pivots. Look for bent or nicked leaves. If you see any, beware. In time, their pivot pins will shear off and you will have a repair bill coming up.

Rangefinder

Always check a rangefinder at infinity as well as with an object at a known distance. The dealer will usually know one distance within his store to the inch. (Remember, he too checks cameras.) Focus through the rangefinder on the object at the known distance, then check the rangefinder scale for the reading. To test infinity settings on rangefinders, set the scale at infinity, step outside the door of the shop, and look through the rangefinder at a distant object. You should see one unbroken image. To check rangefinder coupling, a focusing panel (tissue or wax paper) in the film plane is recommended. The film-plane image, the rangefinder image, and the scale should all give the same in-focus results.

Bellows

If the camera you're looking at is a bellows-type, remove the back and look toward the light with the shutter closed and the bellows extended fully. If you see any pinholes, they will cause fogging in your pictures when the camera is used. While you are looking, check for light leaks from the camera body itself. If you see any worn spots on the bellows which have not yet worn through completely, remember they are possible danger points in the future. If the camera you are inspecting is not a bellows-type, give it the see-through test anyway, still looking for leaks.

Parallel alignment

The lenses of all cameras must be parallel to, and centered on the film plane. This is easily checked with a visual test. Look at the camera from one side; the lens standard (or mount) must be parallel with the back of the camera or the front of the camera body, whichever is easiest to check. Look at the camera from a dead top view—the same condition must prevail. Always look at the camera from the side *and* top. In reflex cameras it's the front panel as well as the lens itself you

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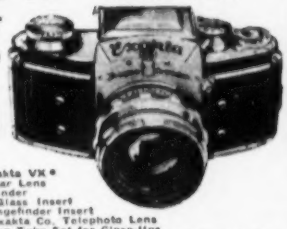

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must check. In folding and press-type cameras, it's the lens board or standard as well as the lens itself you are checking. On folding and press-types, the camera bed (the folding front door on which the focusing tracks are found) should be absolutely perpendicular to the front of the camera body.

Check the film plane of the camera too, for parallel alignment with the rear of the camera body. Do this by removing the back of the camera and checking all four corners of the film plane. (Usually, this is unnecessary on Leica and Canon cameras. But if it will make you feel better, take the bottom plate off the camera and visually check the film receptacle against the back of the camera.) While the back is off, inspect the pressure plate for finish and wear.

On sheet-film cameras, check the film-holder spring-back for parallel alignment and the groundglass for alignment and condition.

Focusing

While there are several methods of focusing, depending upon the type of camera, smoothness is the common trait of all good focusing. Here are tests for the common varieties.

Helical focusing moves the front element of the lens, or the entire lens, forward and backward by means of spiral threads. If turning the focusing ring produces a gritty feeling, or sticking, take care. The threads may have been damaged. Also, watch for focusing mounts that turn too loosely—in use the setting can be disturbed very easily.

Twin-lens reflex cameras with side-knob controls are tested by turning the knob to move the lens board all the way forward, then all the way back to infinity. Look for rubbing or binding anywhere, indicating damaged focusing struts, bent front panel, or bad gearing linkage.

Twin-lens reflex cameras with helical focusing require both lens mounts to be lined up evenly. The gear of one lens should not be farther forward than the other where they mesh and the gear teeth should mesh well, giving a good bite. If these conditions aren't met, the gears can be disengaged easily.

With reflex cameras, check the image on the groundglass with the image in the film plane. A piece of tissue or acetate in the film plane will provide a good image for checking. Look into the groundglass to see if the mirror is cracked and also check for chipping of the groundglass.

Press-type cameras, and most folding cameras, have focusing tracks on the front door, or bed of the camera. In press types, there are a set of tracks and a set of rails. Race the tracks all the way forward (by means of the knob usually found on either side of the bed, toward the front), then all the way back past the infinity mark on the focusing scale. The movement should be smooth but positive. Beware of too-loose or too-tight movement. Looseness means the setting can't be maintained easily, and tightness will make picture-taking unpleasant. On folding cameras, the track is usually a set of rails upon which the lens standard slides. The movement must be smooth but positive.

Shutter

The one part of a camera that most often goes haywire is the shutter, and the most common shutter difficulty is erratic shutter speeds. There are many tiny parts in a shutter that attract dust and dirt; they clog, sometimes wear loose and need adjustment. Shutters are delicate instruments and are very strongly made, but they get more wear than any other part of a camera. Wear usually shows up first in the slow speeds. Therefore, it is best checked at the one-second speed. Compare the shutter against that of a similar (but brand-new) model, or several new cameras. Try the one-second shutter test by ear at least ten times. If there is a small piece of dirt kicking around the mechanism of the used camera causing unpredictable inaccuracies, it should show up. This test is good for both focal-plane and blade shutters.

Other things to look for in shutters are bent, nicked, or scratched blades; incomplete closing (checked by looking through the back of the camera with the shutter closed; pinhole of light means shutter doesn't close all the way); and frayed or perforated curtains in focal-plane shutters. The last condition is the most difficult to notice, but is the rarest in occurrence. It usually requires a repairman to discover it. One important thing to look

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for is a film of oil on the shutter blades. It should *never* be there. Rather than lubricating the shutter, this oil film causes the blades to bind, resulting in faulty operation and wear and tear on the other fine shutter parts trying to overcome the binding.

While inspecting the shutter, test the flash synchronization. The only superficial test you can use it to see if the flash contacts are working properly. Ask the dealer to bring out a flash tester for you to use. To actually check the millisecond delays requires an electronic timer and the facilities of a repair shop. (During your trial period, some flash shots will tell you whether the millisecond delays are correct.) If you get a flashgun as part of the deal on the camera, bend exposed wires back and forth during the test to see if they have broken anywhere.

Film transport

This is an extremely important check to make in any camera, but especially in "automatic" cameras. Sometimes it is the only way to find bad shutter defects, cocking mechanisms, counter mechanisms, double-exposure preventatives, and sprocket engagement. Load the camera with a sheet of test film (provided by dealer) and go through the entire loading, advancing, shooting, and rewinding operation. Be sure film advances without strain, counter mechanism works, shutter is cocked and released when and as required. There should be no trouble with the rewinding operation.

With automatic cameras, the normal cycle is to advance the film, shoot, advance, shoot, etc. Double-exposure prevention can be checked by advancing the film, releasing the shutter, and then shooting again without advancing. Nothing should happen the second time. If it does, the mechanism is faulty or there just isn't any. See if it counterskips: if you can't get the shutter to operate, that's it. Don't ask any questions of the dealer. You don't want the camera. Try to reverse the direction of the film-advance knob. You shouldn't be able to move it at all, or if so, very little. This is an important check. If the film unwinds on the takeup spool, you're in for a lot of trouble.

When testing sheet-film cameras, try putting a film holder into the spring back, to see how it moves. Try the same test with a film-pack adapter.

On any camera, if you encounter the slightest trouble while making a film-transport check, stop what you are doing immediately. It may be that nothing is wrong and that only your unfamiliarity with the camera is causing the trouble. On the other hand, there may be something badly wrong with some part of the film-advance mechanism, and if you try to force it you may cause even greater damage.

The price of a used camera depends on many factors. The older it is, the less it'll probably cost. Of course, if it's a very good camera and is considered rare, it might be more expensive than a new one. Over-all condition has a lot to do with the price. The better the shape it's in, the higher the price. The newer the camera, again, the higher the price. Generally speaking, a used camera at least a year old should run no more than two thirds the original list price. But remember the above mentioned exceptions to the rule. Naturally, the more features the camera offers, the more it's worth to the dealer, as well as you. If the camera is guaranteed for a specific time (and most are), it will cost more than one with an "as is" tag. With this buy, you will have to take care of the repairs yourself. Some stores allow you to take the camera to their repair department for an estimate.

These are the things to look for when buying a used camera. Don't be ashamed of owning one. Every professional is making his money with "used" cameras and even your precision camera, which you've had for a year or more, is only a used camera to someone else. Just remember these rules. Used cameras often let you acquire that second camera you have always wanted. Buy a used camera *only* from a reputable camera dealer and try to buy one on which a guarantee has been placed. Always ask for a reasonable trial period. Check every part of the camera in the presence of the dealer. It helps you if he knows that *you* know what to look for. This summer, when you're out on vacation with a couple of cameras slung from your neck, have fun with your used camera.—

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Candid Shots

(*Continued from page 40*)

Photo. For instance, there's this Thing. This Thing is a sort of a box, you see. A kind of . . . like . . . well, a cooky box, maybe. But not exactly. The Thing doesn't have a name, at least not yet. Some people call it the Voodoo Box, because when a Thing doesn't have a name, you have to call it something. Things like boxes usually contain something. Most of us here, at this point, are not sure just what the Voodoo Box contains, but we're pretty sure it's something important, or it wouldn't be such a big secret. Hope you'll drop around next month and look inside with us.

Next month, too, will bring the first announcement of our 1956 International Picture Contest. Last December, when we announced winners in the 1955 competition, we printed a lot of the pictures. The April issue will be a kind of supplement to that big contest number. It will bring you a big portfolio of prize-winning photographs, so you'll have a better idea of the kind of work that's likely to win this year. Watch for it, and start dreaming of getting your share of the $25,000 award money!

Short-Short Course

Word comes from Arizona of an activity that indicates the strength and freshness of interest in photography outside the big cities. The Fourth Annual Tucson Photography Workshop will be held on February 11, in the Tucson High School building. It's a one-day program of talks and demonstrations on photographic tools and techniques, it's open to all comers, and it's free. Initiator of the workshop was Harry A. Goldstein, instructor in photography in the high-school graphic-arts department. (Incidentally, how many small-city high schools have photography instructors?) Goldstein enlisted the co-operation of the Graflex Corporation and the local daily paper. Progress has been encouraging; four years ago 75 people attended, and last year there were 178. This kind of decentralization in the study of photography is a healthy thing, and we're glad to report it.

Sports Scouting "On the Spot"

The Polaroid Corporation comes up with another story about the usefulness of its product, the picture-in-a-minute camera. We pass it on for what it may be worth to the nation's athletic coaches next season. The University of Michigan's football mentors, impatient with the customary week's delay in using scouts' pictures of their opponents, stationed a man with a Land camera on the press-box roof during the first half of Michigan's game with Iowa. His pictures revealed holes in Iowa's defense; the team studied them at half-time, took advantage of the enemy's weak spots, and won the game. Perhaps by next season every college team in the country will be using the technique, and everybody will just go back to playing the best possible game.—

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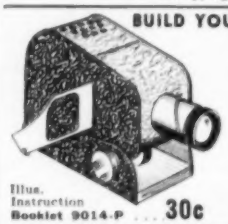

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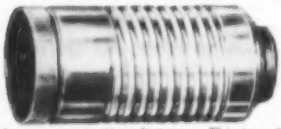
Projection Type! Build it yourself. Write for FREE PLAN SHEET—and list of available parts! Send your name and address—request Bulletin 35-P.

1/1.4 16mm MOVIE PROJECTION LENS



F. L. only 1" . . . or 1/2 that of standard 16mm projecting lens. Gives you a big picture—4 times the size normally obtained in same projecting distance. This is a 6 element coated lens manufactured for use in an expensive Juke Box Projector. Would normally retail for about $30.00. Lens unit mounted in a standard sleeve with an O. D. of 1 5/16" which fits most 16mm projectors. Brass tubing available to change O. D. for adapting to other sizes from 1" to 1 1/2". Direction sheet included. Back of this lens must come to within 5/16" of film. Excellent for making your own projector taking Viewmaster-size film, or for making a contour projector.

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Homemade Stereo-Adapters	9032-P	30c
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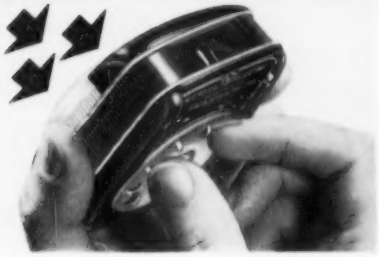
METER ACCURATELY MEASURES color quality of existing light, *suggests* corrective filter to use; makes it easy to get normal color balance in any weather or to exaggerate color effects.



EASY-TO-USE, just hold General Electric color meter with light-collecting dome *facing* daylight or tungsten illumination.

TURN DIAL, aligning red pointer with fixed white index to get recommended filter reading for color correction.

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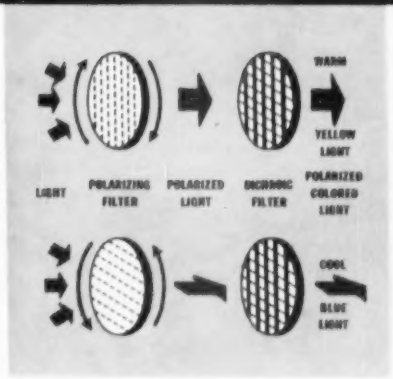

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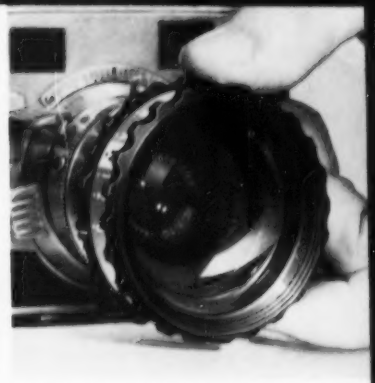

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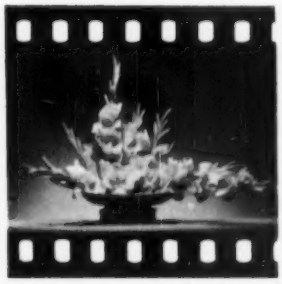

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